Recruitment and Retention of the Health Workforce in Europe

Report on evidence of effective measures to recruit and retain health professionals in the EU and EEA/EFTA countries

Annex 7

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Recruitment and Retention of the Health Workforce in Europe

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Annex 7

Report on evidence of effective measures to recruit and retain health professionals in the EU and EEA/EFTA countries

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Executive summary

This review maps interventions to improve recruitment and retention (R&R) of health professionals in the European Union (EU) and in countries of the European Free Trade Association (EFTA). Three strategies were used to collect information on R&R interventions: a scoping review of peer-reviewed literature, a review of grey literature, and the consultation of informants in the 32 targeted countries to identify interventions which are not reported in the other two sources. The focus is on R&R of physicians and nurses.

In the EU and EFTA countries, most interventions are triggered by similar motivations and objectives such as observed or forecasted shortages of a category of personnel, high attrition rates due to career reorientation, early retirement, or emigration, and difficulties in recruiting and retaining personnel in certain professions, fields of practice, or geographical locations.

Responses to R&R problems tend to be interventions consisting in one or more of the following: changes in the education of health professionals, the provision of financial incentives, and of professional and personal support measures, and regulatory measures.

A number of facilitating factors and barriers have been identified that might support or hamper the development of R&R strategies or their implementation. Facilitating factors include acknowledgement of the workforce challenges in policy documents and government reports; political support and pilot schemes which create a pool of advocates for change; and collaboration by stakeholders that builds trust and ownership and increases the probability of success. The review did not identify studies which explicitly addressed barriers or obstacles to the improvement of R&R of health professionals. The absence of facilitators can be expected to be an obstacle such as when there is no a health workforce policy, little political awareness and commitment, weak collaboration from stakeholders or insufficient financial resources. There are also potential legal and organizational obstacles or barriers, such as rigid definitions of scopes of practice or weak capacity to design and implement interventions.

In terms of successful interventions, the following key lessons emerged:

- Policy-makers and organization leaders should consider combinations of interventions rather than single ones to address underserved areas' R&R problems.
- Interventions should take into account the specificity of factors which influence r R&R.
- Interventions should be designed and implemented in accordance to local characteristics, and in accordance to the characteristics of the target group of professionals.
- The institutionalization of support to health workforce development offers continuity and the development of technical capacity to design and implement policies and interventions.

The findings of the literature review and input from country correspondents show that much work is to be done to understand how best to improve R&R of health professionals. It is suggested that policy makers could augment the probability of success of interventions by creating enabling conditions for their implementation, including through dialogue with stakeholders and support to managers, educators and professionals who implement them. For health service researchers, there is still much to do to produce evidence on the effectiveness of R&R strategies and thereby inform better policy-making in this field

1. Background and objective of the literature review

This review is a contribution to mapping interventions to improve recruitment and retention (R&R) of health professionals in the European Union (EU) and in countries of the European Free Trade Association (EFTA), Iceland, Liechtenstein, Norway, and Switzerland. The review also serves as a basis to inform the selection of country case studies for the second stage of this project which will examine in greater depth the various dimensions of specific interventions. The information produced by this study seeks to answer a series of questions formulated by the European Commission in the tender under which this research is conducted (Box1).

Box 1: Research Questions R&R study

1. What are the roles and responsibilities of the various policy actors and stakeholders in the design and development of interventions to recruit and retain health professionals? How do they cooperate to shape strategies? How is the role of recruitment agencies governed?
2. What is the interaction and coherence of various policy measures in health, education, employment and labour market to recruit and retain health professionals? Are there legal barriers to certain types of policy measures to recruit and retain health workers?
3. How are strategies developed within healthcare organisations and how do national and regional policies frame those strategies?
4. Is the "effectiveness" of interventions to retain health professionals defined, monitored and measured? If yes, what methods and indicators are used, for example, to monitor staff turnover and to measure the benefits of staff retention in terms of reduced costs, improved organisational performance and quality of care?
5. What are the principles and processes which characterise successful as well as not successful initiatives? What can policy-makers and health managers learn from what works, what does not work and why?

The objective of the literature search is to identify "effective" interventions to improve the R&R of health workers which can provide lessons which can inform policy decisions in EU/EFTA countries.

This report first describes the sources of material collected and the methods used to extract the relevant data and information on R&R interventions. The findings are then presented by category of interventions identified: education, financial incentives, professional and personal support and regulation. The *Findings* section presents brief descriptions of interventions documented in primary studies and in other literature. Information received from country informants is presented separately. A *Discussion* section follows; it includes the identification of facilitators

or barriers to the effectiveness of interventions[1] , and lessons that policy-makers can derive from these.

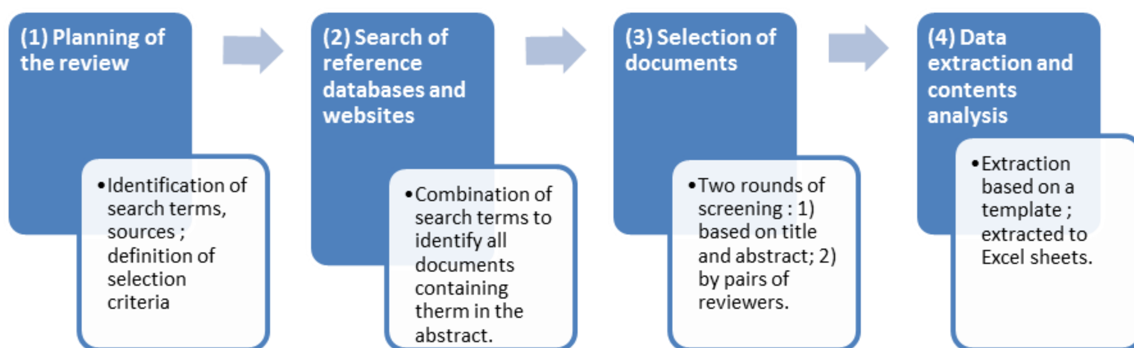
[1] This notion is discussed in further detail in the *Discussion* section.

2. Methods and framework for analysis

2.1. Methodology

Three strategies were used to collect information on R&R interventions: a scoping review of peer-reviewed literature, a review of grey literature, and the consultation of informants in each of the 32 targeted countries to identify interventions which are not reported in the other two sources. The focus is on R&R of physicians and nurses. The review of published literature involved the following steps (Figure 1):

Figure 1: Steps of review of published literature



(1) Planning of the review: identification of search terms, identification of sources and definition of selection criteria of documents for analysis.

- An initial list of search terms was drafted using MESH (Medical Subject Headings) terms, the National Library of Medicine's controlled vocabulary used for indexing articles; this is a standard practice for literature search on health related topics. A final list was selected by consensus among members of the consortium (Annex 1).
- Selected sources of references were of two types:

  (1) the two most comprehensive databases of references in the field of health services research, Pubmed and BVS (Biblioteca Vitual em Saúde) which includes literature in Portuguese and Spanish; and

  (2) a selection of websites, of governments, of international organisations and of documentary repositories covering health services related topics (Annex 2).

Inclusion criteria were: articles and other documents published after 1993[2] to date, in English, French, Portuguese, and Spanish, covering the EU-28 and EFTA countries, plus Australia, Brazil and South Africa[3], and discussing interventions and issues of R&R of physicians and nurses, including educators and managers.

(2) Search of reference databases and websites; this consisted of using combinations of search terms to identify all documents which contained them in the abstract or in the text itself.

(3) Selection of documents for analysis by conducting two rounds of screening by pairs of reviewers. The first round consisted of identifying documents which met the inclusion criteria. The second screening consisted of reading the full document to eliminate non relevant documents. In case of doubt or of disagreement between reviewers, the decision was always to include the document.

(4) Data extraction and contents analysis; relevant information according to a template and transferred to Excel sheets.

The **consultation of country informants** started with the identification of a respondent in each of the 32 target countries (Annex 3). Informants were asked to identify the following: documents on R&R problems in the country (principally for physicians and nurses), and on interventions to improve them, if any; relevant policy documents such as national or organisational strategies, laws, decrees, administrative decisions, etc.; other relevant documents, such as research or administrative and evaluation reports, statements by professional associations and the like; and the best sources of data on the health workforce (stock, geographical distribution, etc.) as well as information on how to access them. The information received from country-informants was analysed and reported separately.

The methodology had limitations which were taken into account in discussing the findings. First, there is a language bias in restricting the search to documents published in four languages. Publications in other languages used in the target countries were not retrieved; in fact, they may not always be indexed in the searched databases. This limitation was addressed by using native speakers to identify relevant documents, but time and financial constraints meant that full translation of relevant documents was not possible.

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[2] Year of publication of the *World Development Report 1993- Investing in Health* which was influential in raising the issue of the efficiency of health systems, including that of the utilisation of human resources.
[3] Results for these three countries are presented in a separate report.

Secondly, although they included a description of the interventions, most studies provided no or little information on the implementation process, on the period of the intervention (when it started and ended), on actors involved (who commissioned, who implemented, who evaluated the intervention), or on costs. As this was a desk work, it was not possible to fill in those gaps.

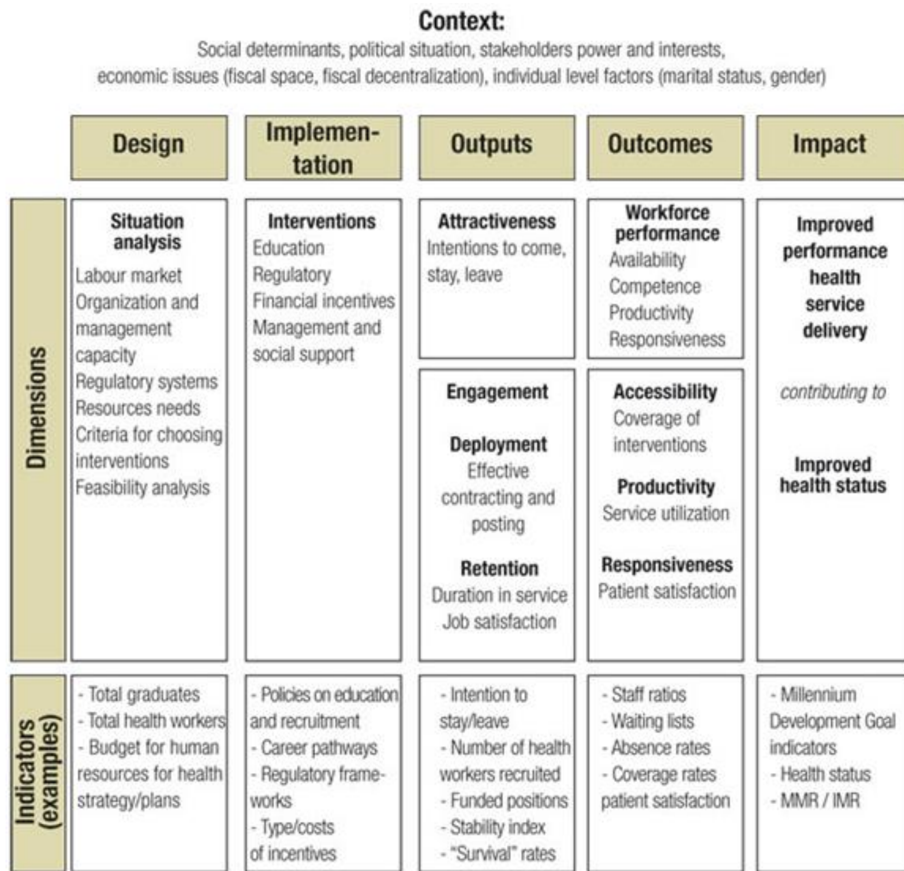
Thirdly, the selection of country informants was one of convenience; we used the network of consortium members to identify potential informants.. Time constraints meant that it was not possible to setup a procedure to validate the contents or the completeness of the information received for each country. For some countries, in particular the more decentralised ones, additional experts have been asked to complement the available information. However, this study does not present an exhaustive overview of all interventions currently taking place in the target countries. The findings are a first contribution to the knowledge base on the R&R of health professionals.

2.2. Framework for analysis

The analysis of collected information was based on a framework, adapted from one designed to evaluate the impact of the World Health Organization *Global policy recommendations on increasing access to health workers in remote and rural areas through improved retention* (Figure 2) (WHO 2010). These *Recommendations* were based on an extensive consultation and on a broad review of literature (up to early 2010). This review yielded little on EU and EFTA countries[4], but the evaluation framework applies equally well to interventions from these countries.

[4] Except for 3 OECD studies, the list of references (N=105) of this Report does not contain a single one from an EU or EFTA country. On the other hand there are many on Australia and South Africa.

Figure 2: Conceptual framework for measuring efforts to increase access to health workers in underserved areas



(Source: Huicho, L., Dieleman, M., Campbell J., Codjia, L., Balabanova, D., Dussault G., Dolea C., 2010 Increasing access to health workers in underserved areas: A conceptual framework for measuring results, Bulletin of the World Health Organisation, 88 (5) : 358)

After a first reading of the documents considered relevant for analysis, the categorisation of interventions used in the above framework was slightly modified to reflect better the contents of the literature. The four categories used are defined in Box 2.

Box 2: Typology of interventions on Recruitment and Retention of health professionals

- **Education Interventions** refer to changes in the structure, length and contents of curricula, in the location of training institutions, and in the development of continuing education programmes.
- **Financial incentives** refer to increased remuneration and to any type of direct or indirect financial advantage such as subsidies or free access to some goods and services.
- **Professional and personal support** interventions include improving working and living conditions of professionals and their family.
- **Regulation** interventions include policy and organisational level measures such as compulsory service, changes in employment contracts and in care delivery models.

Interventions were also categorised according to the level at which they were designed: policy, e.g. at government, professional council or association, such as a hospital federation, or organisation, e.g. health services provider such as singleor group of health centres or hospitals, or education institutions.

Adapted from Huicho et al. 2010

3. Findings

This section starts with an overview of the results of the complete literature search process and of the successive screenings; it then presents the findings in three parts:first, results from the review of primary studies published in peer-reviewed journals and presenting findings based on direct observation of an intervention, and findings from reviews, which are published articles and documents which address R&R issues on the basis of secondary data[5]; second, results from the grey literature, which include reports, working papers and documents not indexed in reference databases but available on web sites; third, additional information from the consultation of key informants.

3.1. Overview of the literature search process

A summary of the data collection steps and results is presented in Annex 4. The initial search identified 17,752 potentially relevant documents in databases of references and 24,975 in the selected websites. The first screening (reading of titles and abstracts) reduced these figures to 3,534 and 1,159 respectively[6]. The second screening (full reading) further reduced the number to 996 documents of which a final list of 369 (167 EU/EEA-EFTA countries; 202 Non-EU countries) were considered eligible for analysis on the basis that they met all inclusion criteria of language (English, French, Portuguese, Spanish), date of publication (1993 to date) and of explicitly discussing a specific or a set of R&R interventions.
Of the analysed material, 60 (23 EU/EEA-EFTA countries; 37 Non-EU countries) were primary studies. The other documents included reviews (11 in total – 4 EU/EEA-EFTA countries; 7 Non-EU countries), and grey literature (50 in total – 37 EU/EEA-EFTA countries; 13 Non-EU countries, Annex 7)[7]. Table1 shows the distribution of documents.

[5] Reviews which reported on studies already presented in the Primary studies section were not included in that section. However, the conclusions which they derived from the review of other studies were used in the *Discussion* section.
[6] "Retention" is also a widely used clinical term, which explains the gap between the initial results and those of the first screening after the elimination of papers with clinical contents.
[7] We also identified "context documents » (N= 248 - 103 EU/EEA-EFTA countries; 145 Non-EU countries) which were generic descriptions of observed or forecasted R&R issues, advocacy papers, and the like. These have not been included as they typically did not present evidence.

Table 1: Distribution of documents identified as potentially relevant after second screening

	EU/EFTA	NON-EU	Total
Primary Studies	23	37	60
Reviews	4	7	11
Grey literature	37	13	50
Context studies (not included in review[8])	103	145	248
Total	**167**	**202**	**369**

Table 1: break down of final reviewed documents in types of findings versus EU/EFTA versus NON-EU

The documentation collected from country informants generally consisted of reports or policy documents which we reviewed under the category "grey literature". Informants also identified interventions they were aware of, but which were not documented.

The collected material includes: general descriptions of R&R issues, of policies and plans, and of interventions or proposals of interventions; and surveys of opinions, expectations, intentions of students and professionals in relation to the choice of a profession, of a specialty, of an area of work, of a practice location, or of staying in their job or in the country. Surveys are not studies of interventions, but they can help identify factors which should, be considered in designing and implementing interventions to improve R&R.

[8] After a second reading these were considered as adding little to the other selected documents: most were advocacy documents presenting no evidence on interventions.

Table 2: Number of interventions identified by country

Source/country	Number of Interventions						
	Primary Studies	Reviews	Grey literature				Total
			E	FI	PPS	R	
Austria	-	-	-	-	1	-	**1**
Belgium	1	-	-	1	1	1	**4**
Bulgaria	-	-	-	1	2	-	**3**
Croatia	-	-	-	1	-	-	**1**
Cyprus	-	-	-	-	-	1	**1**
Czech Republic	-	-	3	2	4	1	**10**
Denmark	-	2	-	2	2	-	**6**
Estonia	-	-	1	1	2	-	**4**
Finland	-	2	-	1	-	1	**4**
France	-	-	2	3	1	2	**8**
Germany	1	-	1	2	1	-	**5**
Greece	-	-	-	2	-	-	**2**
Hungary	-	-	-	1	-	-	**1**
Iceland	-	1	-	1	-	-	**2**
Ireland	-	1	-	-	2	1	**4**
Italy	-	-	1	-	-	-	**1**
Latvia	-	-	-	-	-	-	**-**
Liechtenstein	-	-	-	-	-	-	**-**
Lithuania	-	-	1	2	-	-	**3**
Luxembourg	-	-	-	-	-	-	**-**
Malta	-	-	-	1	2	-	**3**
Netherlands	-	1	-	-	-	-	**1**
Norway	2	1	1	1	2	1	**8**
Poland	-	-	-	1		1	**2**
Portugal	-	1	-	-	-	-	**1**
Romania	-	-	-	1	3	-	**4**
Slovakia	-	-	-	-	-	-	**-**
Slovenia	-	-	1		1	-	**2**
Spain	-	-	-	2	1	1	**4**
Sweden	-	1	1	1	1	-	**4**
Switzerland	-	-	-	-	-	-	**-**
United Kingdom	19	4	5	2	8	1	**39**
Total	**23**	**14**	**17**	**29**	**34**	**11**	**128**

3.2. Primary studies

A total of 23 peer reviewed articles were included: 14 education interventions, 3 financial incentives; 4 professional and personal support; and 2 regulation. An overview can be found in the next pages, and the interventions are described in more detail (section 3.2.1. onwards).

Table 3: Overview of documents reporting on education interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Increase the number or quality of eligible students				
Bridging programme to help students to enter university nursing training (cadet scheme)	**United Kingdom** (Draper et al, 2002)	**Mixed:** Cadets felt better prepared clinically than academically. Some experienced difficulties in the transition to higher education and further review is therefore required to establish the success of cadet schemes.	Schemes are designed and based on community local needs, which can improve adherence to the programme and a faster response to local population needs. **Facilitators –** Commitment of the NHS Plan to increase the number of schemed and to flex the pathways into (and through) nurse education. **Barriers -** Diversity between communities in cadet schemes (legal and funding issues, diversity in the entry requirements and outcomes).	**Cohort Study**
Attract additional or better fitting students to health training institutes				
Upgrade nursing education	**United Kingdom** (Davies et al, 2000)	**Mixed**: The graduated nurses were better prepared and there are minor indications that the policy may reduce the % of staff considering leaving nursing, but the strategy did not change the attracted applicants, who remained the same in terms of age range, prior education, gender and social or family responsibilities, nor their intent to remain in nursing.	**Barriers** - Rapid social change and economic recession **Facilitators** – not mentioned	**Mixed methods research**
Health training in the targeted area				
Undergraduate clinical experience or post-graduate residency in target geographical areas	**Norway** (Straume and Shaw 2010).	**Positive:** Increase in the percentage of graduates who actually accepts a post in the targeted area and remains there for at least 5 years. The demand for these internships seems to increase after other cohorts have expressed their positive experiences.	**Barriers –** Local context (long distances and the harsh climate make transporting patients to higher-level facilities very difficult). **Facilitators -** Networking with peers from neighbouring municipalities – as an opportunity to overcome professional and social isolation	**Evaluation**
Continuing professional development for both young and established GPs	**United Kingdom** (Bellman, 2002)	**Mixed:** "Enthusiastic support" for the continuation of the scheme; empowering process for the GPAs; The difficulty of undertaking a research project in nine months; For a female GPA there was an additional constraint on her time.	**Facilitators** - Embedding the scheme locally will be significant for the future recruitment and retention of young GPs, **Barriers** - There is a need to confront issues regarding cooperative and collaborative working in all the settings.	**Qualitative**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Undergraduate clinical experience or post-graduate residency in target specialization	**Germany** (Deutsch et al 2013) **Norway** (Straume et al 2010)	**Positive:** In Germany, the community based family practice elective seemed to positively influence students' perception of the specialty and eventually their choice of a career in family practice. In Norway, of the 80–90 primary care physicians working in Finnmark today, only a handful have not completed or are still in one of the programs in this county. The five-year retention rate of 65–67% is considered satisfactory.	In Germany **Facilitators –** not mentioned **Barriers –** not mentioned In Norway **Barriers -** The hospital year is often critical for retention, for when physicians leave the county for this practice, some never return. **Facilitators -** Professional support is a crucial element of retention programs in Norway.	**Survey** (Germany) **Cohort Study** (Norway)
Rotational models				
Community rotational posts	**United Kingdom** (Bellot and Baker, 2005)	**Mixed**: The scheme offered a positive experience. It is too early to tell at this stage if the scheme offers value for money in recruiting or retaining staff or improving the patients' care experiences. This will only become apparent in the years after the participants complete their training and return to community or primary care.	**Facilitators –** not mentioned **Barriers –** not mentioned	**Descriptive**
Rotational working programme for nurses in neonatal care.	**United Kingdom** (Kane, 2007)	**Positive:** Those who participated in the pilot became advocates for rotational working; their experiences of personal development had a positive influence on their working practices and on their peers.	**Facilitators -** Political support: the concept of the neonatal network was officially launched in England and Wales in October 2003. **Barriers** - There were some initial barriers as would be expected at the beginning of an innovative programme, but they were overcomed.	**Evaluation of the Pilot**
Attraction of students by employers				
Implementation of new recruitment strategy of newly qualified nursing students	**United Kingdom** Baillie et al. (2003)	**Positive:** Recruitment rates were higher among those who experienced the new strategy. The new recruitment strategy developed by the working party was evaluated positively by the two groups surveyed.	**Facilitators –** not mentioned **Barriers –** not mentioned	**Exploratory survey**
Enabling nursing students to complete the majority of their clinical placements within the same hospital trust.	**United Kingdom** (Andrews et al 2005).	**Mixed:** Home Trusts that provide an effective and supportive clinical placement-learning environment are more attractive as first destination employment locations, than Home Trusts that provide a less facilitative clinical placement experiences. The Home Trust initiative was perceived as a constraint to gaining a variety of clinical experience and market knowledge of potential employment.	**Barriers –**Organizational context - the success of Home Trust application needs to be supported by appropriate; **Facilitators -** Availability of a variety of placements within the Home Trust environment; some students commented on the positive aspects of the Home Trust initiative in reducing the demands of travelling and finding accommodation in different placement locations	**Survey**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Sponsor Health Care Assistants training to upgrade to registered nurses	**United Kingdom** (Andrews et al, 2005)	**Positive:** Secondment seems to be an effective way of fostering loyalty and attracting students back to work. Although its potential is limited to the numbers of willing and able HCAs within a particular trust, given its effectiveness, this innovation should be developed as a potentially valuable source of nursing students	**Facilitators –** not mentioned **Barriers –** not mentioned	**Mixed methods research**
Offering specialist renal post-registration training courses	**United Kingdom** (King, 2006)	**Positive:** The course has increased job satisfaction and decreased the need for recruitment of new staff.	**Facilitators** - Hospital ability to offer in house, accredited training courses. **Barriers** – not mentioned	**Mixed methods research**
Clinical career structures for nurses, including innovative posts known as nurse consultants	**United Kingdom** (Drennan & Goodman, 2011)	**Mixed:** This case study found that within two years, of the ten nurse consultant posts created in a primary care organization, only five remained occupied by original appointees, and after five years (2009) only two part time posts..I In this community services setting the nurse consultant roles were not successfully assimilated into the health care system.	**Barriers -** From an organizational point of view, embedding and sustaining an innovation until it is part of the delivery system is a complex, poorly understood process. When the nurse consultant leaves her post, it is not replaced (support to the person, not the post). Confusion about the role. **Facilitators –** not mentioned	**NM**
Increase the capacity of leadership				
Education for leadership	**United Kingdom** (Enterkin et al, 2013)	**Mixed:** The majority of participants benefited from the leadership programme and valued this development as an empowering preparation for their future career. Some participants faced individual challenges due to the academic tasks that seems like a burden to them. More preparation was identified as important to continue.	**Facilitators -** Shared experiences and in action learning allows for participants to feel more empowered and to create a positive environment that can help to attract more nurses to the role. **Barriers -** Continued policy and political changes have affected the demands and requirements placed upon the ward sister/charge nurse in England.	**Evaluation**

Table 4: Overview of documents reporting on financial incentives: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Financing structure				
Allow for salaried GP schemes	**United Kingdom** (Ding & Sibbald, 2008)	**Mixed:** Modest improvements in recruitment of GPs into deprived areas with the first wave of salaried GPs Overall levels of job satisfaction in salaried and principal GPs were similar and overall, better recruitment hardly materialized. After a few years, the salaried positions tended to be located in more affluent neighbourhoods.	**Facilitators -** It was hypothesised that salaried GPs may provide better quality of care as a result of their lack of administrative duties or financial incentives to increase their patient list size and reduce the number of patient consultations. Salaried status also imparts other advantages, such as income stability, greater flexibility with geography and schedule, and no financial stake or risk in practice ownership. **Barriers -** The status of a salaried GP is a potential barrier to this intervention (Those most likely to be salaried are GPs seeking greater career flexibility and who wish to be free from the roles and responsibilities of being a principal: including those trained abroad, women of child-bearing age, newly qualified GPs, and GPs nearing retirement.	**Cross-Sectional Study**
	United Kingdom (Williams et al., 2001)	**Negative:** modest improvements in recruitment of GPs into deprived areas with the first wave of salaried GPs; Public health benefits, such as an improvement in practice performance and better recruitment into deprived areas do not appear to have materialised.	**Facilitators -** Salaried PMS contracts tend to offer lower pay but more employment benefits (e.g. sickness and maternity leave, etc); Payment stability; It offers reduced hours, freedom from out-of-hours and administrative responsibilities. **Barriers** - "Disadvantages include lower income, perceived lower status, and a shorter-term contract"	**Cross-sectional study**
Agenda for Change: introduction of a national pay system for all NHS staff (nurses and other professionals), except doctors and dentists	**United Kingdom** (Buchan & Evans 2008; Buchan & Ball 2011)	**Mixed:** Variable local impact was observed in the ten NHS hospital trusts. Implementation had not been 'felt fair' by many staff, with some categories of nurses being less satisfied with the process of implementation.	A national pay system has strengths and weaknesses compared to local systems. **Barriers -** Given the scale of the exercise, its costs and assumed benefits, the absence of any full and systematic evaluation constrains the overall potential for Agenda for Change to deliver improvements to the NHS. **Facilitators –** favourable political context - With the election of a Labour government in May 1997, the prospect of a new NHS pay system was raised.	**Evaluation**

Table 5: Overview of documents reporting on professional and personal support: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
ADDRESSING THE DIFFICULTY OF COMBINING PROFESSIONAL AND PERSONAL LIFE (CARE OF CHILDREN OR OF FAMILY MEMBERS, AGEING): FAMILY-FRIENDLY POLICIES AND PROMOTING A HEALTHY WORK-LIFE BALANCE				
Return-to-practice programmes for nurses or physicians who suspended or cancelled their registration	**United Kingdom** (Barriball et al., 2007)	**Not mentioned**	**Facilitators -** These developments have been underpinned by growing concerns over demographic and labour market changes that have had a critical effect on nursing throughout the UK (Royal College of Nursing (RCN) 2000), prompting the government to explore ways of maintaining the supply of nurses to meet the needs of the health service. **Barriers -** The success of RTP initiatives depends on wider developments, particularly the implementation of policies to improve the working lives of healthcare staff.	**Multi-Method Study**
Family-friendly policies and flexible working arrangements: part-time work, job-sharing, flexible time, compressed working week, annualised hours, term time working, working from home.	**United Kingdom** (Harris et al., 2010)	**Negative:** There were operational difficulties in implementing a national policy at local level which suggests that flexible work initiatives may be too uniform and prescriptive to accommodate the needs of all workers. The increased difficulty to implement flexible work in 24-h inpatient areas is not surprising; however, it is interesting that the professional culture within nursing appears to discourage flexible work across the board. The implementation of flexible work has caused strain with the result that older nurses may be required to compensate for the flexible work patterns of their younger colleagues. It is suggested that designing policies to improve work–life balance towards staff with childcare needs, while very important, may be disadvantaging older nurses who are likely to be more experienced and skilled.	**Barriers -** The following barriers to the successful implementation of flexible work for nursesin mid-life were identified: (1) the difficulty to implement flexible work in 24-h inpatient areas; (2) the professional culture within nursing appears to discourage flexible work across the board: "let others in the team down"; (3) operational difficulties suggest the need for tailor-made rather than uniform arrangements to accommodate the needs of all workers; (4) older nurses may be required to compensate for the flexible work patterns of their younger colleagues. **Facilitators –** not mentioned	**Qualitative Study**
	United Kingdom (Robinson et al., 2003)	**Not mentioned** In making an assessment of the outcome of implementing family-friendly practices, future research needs to focus on the success of each of these areas of policy objective.	**Facilitators –** not mentioned **Barriers -** For family-friendly policies to be successful they need to be based on knowledge of women's preferences and the extent to which their experiences meet these preferences. Some research has shown that nurses are not being consulted about their requirements by NHS organisations.	**Cohort study**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
IMPROVING THE PRACTICE ENVIRONMENT: MAKING MANAGEMENT AND ORGANIZATIONAL CULTURE MORE RESPONSIVE				
Enhancing human resource management and organizational culture: - enhancing people management skills; - involving personnel in developing and improving management processes; - meeting criteria of good management set by the Magnet Recognition Program of the American Nurses Credentialing Center	**Belgium** (Van den Heede et al., 2013)	**Positive:** Hospitals in Belgium with a flatter organizational structure, a participative type of management, continuing education programs and better career opportunities have lower intention-to-leave rates.	**Facilitators** – not mentioned **Barriers –** not mentioned	**Survey**

Table 6: Overview of documents reporting on regulation interventions: Primary studies

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
General Practitioner (GP) contract	**United Kingdom** (Spurgeon et al., 2005)	**Mixed:** Overall, those aspects of the new contract that are perceived to reduce workload and enhance salary were supported, while those that increase targets and bureaucracy were not. Generally, there was only moderate support for the changes, which could be explained by a general scepticism about any top–down modifications, the practicality and power of the changes to impact upon practice and/or a genuine belief that the modifications are unacceptable. Taken together, these results provide an indicative focus for managing the implementation of the new contract, especially with regard to its least acceptable components and the emerging differences between subgroups of GPs.	**Facilitators** - The General Practitioners' Committee of the British Medical Association and the Government **Barriers -** Although some aspects of the new contract, such as the complex payment structure, were expected to elicit objections from GPs, the principal concern has been about the ways in which primary care trusts (PCTs) will manage its implementation. There has also been speculation about how the new contract will alter R%Rwithin the profession and the nature of primary care generally. The emphasis, then, has been on the role of the PCT in dealing with areas of assumed difficulty.	**Survey**
Ethical Guidance to avoid active recruitment of doctors from resource-poor countries	**United Kingdom** (Blacklock et al., 2012)	**Negative**: Ethical guidance was ineffective in preventing mass registration by doctors trained in resource-poor countries between 2001 and 2004 because of competing NHS policy priorities.	Changes in UK immigration laws and bilateral agreements have subsequently reduced new registrations, but about 4000 new doctors a year who trained in Africa, Asia and less economically developed European countries continue to register. **Barriers -** Case reports suggest this guidance had limited influence in the context of other NHS policy priorities.	**NM**

3.2.1. Education interventions

Four peer-reviewed articles described interventions at policy level and eight at organisational level which dealt with aspects of education, such as curricula, recruitment of students, location of training institutions, and continuing education programmes. Specific interventions include: clinical rotations during the education process, coaching and mentoring of students, adaptation of curricula for rural health work, decentralisation of institutions or programmes of studies, recruitment of students from rural areas, attraction of students or young graduates to certain fields of practice, and development of continuous education programmes.

3.2.1.1. Education interventions at policy level

- **Norway:** The *Medical internship and in-service training model* (Straume, Shaw, 2010), was implemented by the Ministry of Health as part of a national policy. Specialist training programmes in general practice (family medicine) and in public health (community medicine) were designed as "decentralised models that could be implemented anywhere in the country" with a view to giving access to training a close as possible to the region of origin of students and eventually encourage them to settle in the region. These programmes are based on in-service training and group tutorials. Training costs are supported by the Ministry as a strategy to retain general practitioners in rural areas. The study reports "encouraging" results: for example, of 267 medical graduates who interned in Finnmark at extreme North-East of Norway between 1999 to 2006, almost twice as many as expected have accepted their first fully licensed job in the region. Of the 53 physicians who completed training in general practice and family medicine or in public health and community medicine in Finnmark between 1995 to 2003, 34 (65%) were still working in the county 5 years later. The report concludes by expressing "confidence" in the transferability of this approach, noting that the main obstacle to its implementation is the conservatism of professional bodies sticking to "traditional academism" (p.392).
- **Norway:** The *Postgraduate training for physicians* is organised and managed by the Norwegian Medical Association on behalf of the government. The training is carried out in various locations, supervised by one national committee for each of the 44 recognised specialties. The main feature of the programme is the utilisation of tutorial groups during the in-service training (2 years in family medicine and 3 years in public health). The groups meet bi-weekly or once a month (for a whole day) if travel is long. All expenses for training activities,

including travel costs, are covered by government funding (Straume, Søndenå, Prydz, 2010). Two-thirds of participants in the postgraduate residency for primary care physicians in remote areas were still working in the county of training 5 years after completion of their group tutorial. A review of the initiative concluded that "rural practice provides good learning conditions when accompanied by appropriate tutelage, and in-service training allows the trainees and their families to 'grow roots' in the remote area while in training. The group tutorial develops peer support and professional networks to alleviate professional isolation".

- **United Kingdom:** *Project 2000,* introduced in 1992, initiated a reform of nursing pre-service education, by emphasizing theory-based education to scale-up the status of future nurses and by putting more focus on community care. Its objective was to attract more academically qualified recruits and, in the longer term, to change career expectations and career progress of nurses. A study of the first years of *Project 2000* concluded that the intervention "… did not (…) attract a different type of applicant in terms of age range, prior education, gender and social or family responsibilities. (…) There were no significant differences found in type of nurse recruited to *Project 2000* training courses as might have been expected. (…) the study did show that there was no immediate career advantage of *Project 2000* training." (Davies et al, 2000).
- **United Kingdom:** The *Development of modern nurse cadet schemes* was part of the *NHS Plan*, a major national reform project launched in 2000. Cadet schemes were designed to prepare students for access to university nursing education. In 2001, there were 50 schemes in the country and the *NHS Plan* committed to increase this number to 2000 over the following 3 years. After two years, mixed results were reported: "… cadets felt better prepared clinically than academically and found an element of repetition in the nursing programme. They valued their preparation, which they felt put them at an advantage over other nursing students. However, some of them experienced difficulties in the transition to higher education and further review is therefore required to establish the success of cadet schemes" (Draper et al, 2002).

3.2.1.2. Education interventions at organisational level

- **Germany:** The *Early Community-based Family Practice Elective* is a preclinical family practice elective offered at Leipzig Medical School since 2000 to attract students to the specialty of family medicine early in medical education. It is of 28 hours duration, consisting of a preparatory seminar (7 hours) and a

community-based experience with one-to-one mentoring by trained family physicians. In an evaluation conducted in 2008-2010, 140 first and second year students completed questionnaires before and after the elective. Results indicate that a short community-based family practice elective early in medical education may positively influence students' perception of the specialty and eventually their choice of a career in family medicine. Researchers "found a significantly higher rate of students favouring family practice as a career option after the elective (32.7% vs. 26.0%, p = 0.039). Furthermore, the ranking of family practice among other considered career options improved (p = 0.002)" (Deutsh et al, 2013).

- **United Kingdom:** The *GP Assistant/Research Associate scheme* was developed by King´s College School of Medicine, London, aiming to attract, recruit and retain young GPs (GP Assistants) to south-east London inner city practices[9]. The *Continuing Professional Development Programme* is a key feature of the nine-month scheme. An evaluation showed "enthusiastic support for the continuation of the scheme", but also "challenges for managing and leading the scheme; the need for greater co-operation/collaborative working within and between the academic department and the practices", and difficulties for participants such as undertaking a research project in nine months because of clinical work overload, particularly for female GPs who also had to assume family responsibilities (Bellman, 2002).
- **United Kingdom:** Baillie et al. (2003) report on an agreement between a University and a Trust Hospital (not identified in the paper, no date mentioned) for the implementation of a new recruitment strategy of nursing students. The strategy was to establish a direct link between students and nursing management, so as to make students feel valued by the Trust, and confident that they will have access to a job on graduating. Junior students are made aware early in their course that this recruitment strategy is in place. According to the study, the intervention produced positive results: in comparison with a group surveyed prior to the implementation of the intervention, recruitment rates were higher among those who experienced the new strategy. The approach was planned to be implemented to other groups based of this Trust (Baillie et al., 2003), but no further study was encountered.
- **United Kingdom:** The *Pilot scheme for a community rotational model* was designed to address the difficulty in recruiting senior level nurses for the Croydon Primary Care Trust (South-West London), a two-year pilot scheme (no date mentioned). Year 1 consists in clinical rotations of three to four months,

[9] The study which analysed it does not mention a starting date, but presumably it is the late 1990's.

with time allocated to gain experience in other aspects of the speciality. During year two, participants attend a full-time community or primary care practice or nurse practitioner programme. At an interim evaluation meeting with line managers, the consensus was that the project offered a positive experience. However, there were a number of areas that needed improvement such as "better preparation of placements and improved communication" (Bellot & Baker, 2005).

- **United Kingdom:** *Home Trusts* is a home-based learning initiative enabling nursing students to complete the majority of their clinical placements within the same hospital Trust in North West London. Participants reported a "sense of belonging to the ward" and "valued the *Home Trust* as a comfortable and safe first destination". An evaluation based on a multi-method survey of students from two British universities was conducted. The data collection by questionnaires (n= 650), focus groups (n = 7) and interviews (n =30) was carried out in the spring term of 2002 at Buckinghamshire Chilterns University College and Thames Valley University. Results showed that these *Home Trusts* provided an "effective and supportive clinical placement-learning environment, and are more attractive as first destination employment locations than those Home Trusts that provide a less facilitative clinical placement experiences" (Andrews et al, 2005).
- **United Kingdom:** In the *On Secondment Health Care Assistants Programme*, hospitals of the Northwest London Workforce Development Confederation sponsored training to upgrade Health Care Assistants (HCA) to registered nurse and to attract them to the Trust that supported their training (Staff Side 2001, Radcliffe 2002; in Andrews et al., 2005). In a study of a small sample of participants to the programme (n = 32), all received their HCA salary from their hospital for the duration of their course, of which the Confederation reimbursed 80%. Participants are required to return to work as a registered nurse to the Trust from which they were seconded. Andrews et al, (2005) report that for seconded students there was a significant difference in organisational attractiveness between their employer and other hospital Trusts and they conclude that "(…) secondment seems to be an effective way of fostering loyalty and attracting students back to work. Although its potential is limited to the numbers of willing and able HCAs within a particular Trust, given its effectiveness, this innovation should be developed as a potentially valuable source of nursing students". (Andrews et al, 2005).
- **United Kingdom:** The *Renal post-registration training course* is a 15-week post-registration course launched in 2003 which gives an introduction to renal nursing

at the Royal Berkshire Hospital in Reading (South-East England). It is validated by the University of Reading and is intended to attract nurses to this specialty area. Between January 2003 and the end of 2005, 31 nurses completed the course and 27 (87%) were successful, 1 failed and 3 did not complete due to personal circumstances (King, 2006). Participants expressed more confidence in their skill base as well as increased job satisfaction. There was an increase in the number of experienced staff presenting themselves for job selection, possibly as a result of this hospital in-house accredited training courses offer (King, 2006).

- **United Kingdom:** The *Rotational Working Programme for nurses in neonatal care* (Georg Elliot NHS Trust) provides a continued clinical development pathway for neonatal nursing staff. It incorporates competency assessments of emergency skills and training in clinical and technological advances in neonatal care. "The proposal was that staff should rotate between a level three neonatal intensive care unit and a level two/one high dependency special care neonatal unit" (Kane, 2007). A Pilot of the programme was developed in 2003 and feedback was positive enough for it to continue. Morale has improved in the unit, resulting in a decrease in sickness absence from 15 per cent per annum to 1 per cent over two years. Recruitment also improved in these units over three years, from a whole time equivalent vacancy of 3.19 trained staff to 0.96 whole time equivalent (Kane, 2007).
- **United Kingdom:** The *Programme of Education for Leadership* designed to address difficulties to recruit Ward Leaders in a NHS Trust (not identified) in England (year not mentioned), was commissioned by the Director of Nursing and co-designed by the University Institute of Strategic Leadership and Service Improvement and the Department of Adult Nursing. It consisted in an education for leadership programme which three cohorts of 20 participants attended. In response to a questionnaire at the end of the programme, a majority of participants reported having benefited from it as it increased their self-confidence, and as they felt empowered and more capable to empower others; however, some participants perceived academic tasks as "a burden". The researchers who studied the programme recommended investing in leadership preparation for future ward sister roles to enhance quality improvement, career path development, workforce empowerment and retention (Enterkin, Robb & McLaren, 2013).
- **United Kingdom:** The creation of *Clinical career structures for nurses* that include innovative posts as nurse consultants. This new role created in 1998 was specifically designed to offer experienced clinicians an alternative to education and management options with equivalent levels of remuneration. This case study

found that within two years, of the ten nurse consultant posts created in a primary care organisation, only five remained and within five years (2009) only two part time posts, with the original appointees, remained. The nurse consultant roles were not successfully assimilated into the health care system (Drennan and Goodman, 2011).

3.2.2. Financial incentives at policy level

- **United Kingdom:** *Salaried GP Schemes*: in 1997, the NHS (Primary care) introduced a new voluntary scheme to employ GPs on a salaried basis as part of the strategic plan of the "Personal Medical Services" (PMS) pilots for under-served areas. The scheme frees general practitioners from the constraints of former standard contractual arrangements; salaried PMS contracts tend to offer lower pay but more employment benefits (e.g. sickness and maternity leave, etc). Pay is also stable and does not fluctuate with practice revenues, and eligibility for a NHS pension. It offers reduced hours, freedom from out-of-hours and from administrative responsibilities. Williams et al. (2001) highlighted that GPs might not prefer these schemes as PMS sites are mostly located in deprived areas, where GPs have to be responsible for needy families in communities with little resources.
- **United Kingdom:** *Personalised Medical Services (PMS)* was later combined with a new *General medical services (GMS) contract* in 2004, which allows for locally-agreed contracts with salaried GP practices, rather than with individual GPs. Ding et al. (2008) refer to Williams et al. (2001) who observed "modest improvements in recruitment of GPs into deprived areas with the first wave of salaried GPs" and conclude that better recruitment into deprived areas did hardly materialise. They highlighted the status of a salaried GP as a potential barrier to this intervention, as this status included lower income, perceived lower status, and a shorter-term contract. Overall levels of job satisfaction in salaried and principal GPs were similar, while salaried GPs reported lower stress. "Now, several years on, those most likely to be salaried are GPs seeking greater career flexibility (for example, part-time working), and who wish to be free from the roles and responsibilities of being a principal, including those trained abroad, women of child-bearing age, newly qualified GPs, and GPs nearing retirement." Salaried positions tended to be located in more affluent neighbourhoods. One explanation, according to Ding et al. (2008), could be that these practices are

associated with higher quality of outcomes framework (QOF) scores and are therefore more attractive.[10]

- **United Kingdom:** The impact of *Agenda for Change* (2004-2007) was studied at two points in time (Buchan and Evans 2008; Buchan and Ball 2011). *Agenda for Change* was the largest and most ambitious attempt ever to reform the NHS pay system. It applied to more than 1 million NHS staff, except doctors and dentists, who have separate new pay contracts. It introduced two new pay scales: one for nurses and other health professionals; and one for other directly employed NHS staff. These replaced the multiple occupational pay grades, pay points and salary scales of the previous system. *Agenda for Change* objectives were to improve the delivery of patient care and to support new ways of working, as well as to enhance staff recruitment, retention and motivation. The first independent assessment of the impact of *Agenda for Change* at a local and national level used a variety of methods: a literature review; review of grey unpublished documentation provided by key stakeholders in the process; analysis of available data; interviews with key national informants (representing government, employers and trade unions), and case studies conducted with senior human resource managers in ten NHS hospitals in England. Variable local impact was observed in the ten NHS hospital trusts. Results of national staff surveys suggested that implementation had not been 'felt fair' by many staff (Buchan and Evans 2008). No conclusion can be made on impact on R&R. In a more recent study, Buchan and Ball (2011), using data from large-scale surveys of members of the Royal College of Nursing to assess the opinion of nurses on the implementation process itself and their attitude to pay levels found differential impact and experience, with some categories of nurses being less satisfied with the process of implementation. They concluded that a national pay system has strengths and weaknesses compared to local systems, but not enough information is available to conclude whether it has a positive impact on R&R of nurses or not.

[10] Quality and Outcomes Framework (QOF) is a voluntary annual reward and incentive programme for all GP surgeries in England, detailing practice achievement results. It is not about performance management but resourcing and then rewarding good practice.

3.2.3. Professional and personal support

3.2.3.1. Professional and personal support interventions at policy level

- **United Kingdom:** *Return to Practice Programmes* (RTP) were introduced in the UK, as the NHS recognised that the ability of the health service to recruit and retain qualified nursing staff was central to meeting the government's plan for the modernisation of the NHS (RCN2000, Audit Commission 2003). *Return to Practice Programmes* were seen as an important part of this process because, if successful, they have the potential to contribute towards the stabilisation of the nursing workforce while meeting legislative re-registration requirements. It was recognised that success of RTP initiatives is also dependent on wider developments within the health service, particularly the implementation of policies aimed at improving the working lives of healthcare staff. A mixed method study among current RTP participants and among those who had completed a RTP course during the previous 2 years was conducted to gain insight into the returned to practice experience. However, the effectiveness of the intervention was not measured (Barriball, Coopamah, et al., 2007).
- **United Kingdom:** The *NHS modernisation* supported more implementation of "family-friendly" policies, such as part-time work, job-sharing, flexitime, compressed working week, annualised hours, term time working and working from home (Robinson et al., 2003). Government policy to address work–life balance was primarily designed to improve the life of children and parents, and of carers of disabled relatives. The effect of this intervention was not measured, but the authors concluded that in order to be successful, policies need to be based on knowledge of women's preferences and the extent to which their experiences meet these preferences.
- **United Kingdom:** Harris et al. (2010) assessed *Flexible working arrangements* in the NHS. In 2005, they collected quantitative and qualitative data from nurses and health care assistants aged 45 and over, with the aim to "assess views of Trust policies in terms of retention and retirement strategies, flexibility, training and career development opportunities, organisational and professional barriers to and facilitators of implementation of policies for older nurses." They interviewed Trust managers "to identify main human resource concerns and assess views of: deployment of older members of the workforce, policies targeted at older workers and needs of older nurses in terms of flexibility, training and development." Findings are that the experience reveals a number of barriers to the successful implementation of flexible working for nurses working in mid-life, such as: (1) the difficulty to implement flexible work in 24-h inpatient

areas; (2) the professional culture within nursing appears to discourage flexible work across the board; (3) operational difficulties in the implementation at local level suggest the need for tailor-made rather than uniform arrangements to accommodate the needs of all workers; (4) older nurses may be required to compensate for the flexible working patterns of their younger colleagues.

3.2.3.2. Professional and personal support interventions at organisational level

- **Belgium***: Making management and organisational culture more attractive.* Van den Heede et al. (2013) studied how the practice environment influences retention of nurses[11]. A sample of 3186 bedside nurses of 272 randomly selected nursing units in 56 Belgian acute hospitals was surveyed by questionnaire and chief nursing officers of six hospitals were interviewed. Almost 30% of nurses had the intention to leave their hospital; factors significantly related to this intention were low staff-patient ratios and negative perceptions of the work environment. The study also found that hospitals with lower intention-to-leave rates were those with a flatter organisational structure, a participative type of management, continuing education programmes and better career opportunities. The study concludes that investing in improving the practice environment is a "key strategy to retain nurses".

3.2.4. Regulation interventions

- **United Kingdom:** The introduction, in 2003, of a new *National level employment contract for General Practitioners* (GPs) (Spurgeon et al, 2005). The measure was intended to improve productivity, quality of service, workload management, career paths and overall retention. As such, improved retention was only one of several intended outcomes. A survey of the elements of the new contract that were rated most and least "acceptable" by a sample of GPs working in one region, at an early stage of implementation, highlighted that GPs supported aspects that reduced workload and increased salary, but were least supportive of elements that they perceived were increasing"top down" performance targets and bureaucracy. Overall, the surveyed GPs were not persuaded that all the benefits of the new employment contract would be

[11] This study was part of the RN4CAST study, a European multi-country nursing workforce study (Sermeus, W., et al. 2011. Nurse forecasting in Europe (RN4CAST): rationale, design and methodology. *BMC Nursing* 10 (6), 1–9.)

realised, and that more efforts were required to communicate and explain the potential positive benefits. No specific outcomes related to actual measures of retention were listed.

- **United Kingdom:** An *Ethical Guidance to avoid active recruitment of doctors from resource-poor countries* was proposed to avoid unethical recruitment of HRH from poorer countries (Blacklock et al, 2012). Ethical guidance was ineffective in preventing mass registration by doctors trained in resource-poor countries between 2001 and 2004 because of competing NHS policy priorities. Changes in UK immigration laws and bilateral agreements have subsequently reduced new registrations, but about 4,000 new doctors a year who trained in Africa, Asia and less economically developed European countries continue to register.

3.3 Reviews and grey literature

3.3.1. Reviews

This section presents documents which reviewed information from other sources or studies, rather than reporting direct observations of interventions. Four reviews covering 14 interventions have been identified: Denmark (2); Finland (2); Ireland (1); Netherlands (1); Portugal (1); Sweden (1); Norway (1); Iceland (1); UK (4), 10 interventions at policy level and 4 at organisational level. As each review presents more than one type of intervention, it is simpler to present their contents document by document rather than by intervention as in previous sections. The first review has more to do with education issues, such as recruiting in certain sectors, adapting programmes or continuing education. The others report on professional and personal support interventions.

Table 7: Overview of documents reporting on education and related interventions: Reviews

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Attract additional or better fitting students to health training institutes				
Attract students through campaigns and by making them aware of labour market needs / employment opportunities	**Denmark and Norway** (DAMVAD & Stockholm Gerontology Research Center, 2014)	**Not mentioned**	**Barriers -** Not mentioned **Facilitators -** The Sustainable Nordic Welfare programme launched by the Nordic Council of Ministers seeks to find new and innovative welfare solutions in the Nordic Region. This means solutions that may contribute to increased quality and equality in education, work and health for the 25 million in-habitants of the Nordic region.	**Desk research and interviews**
Subsidize education (with or without targeted retraining of an existing pool of supply)	**Sweden** (DAMVAD & Stockholm Gerontology Research Center, 2014)	**Not mentioned**	In Sweden, subsidized continuing education programs were offered to their health care staff willing to move to the area of municipal service delivery to the elderly. **Barriers -** Not mentioned **Facilitators -** The Sustainable Nordic Welfare programme launched by the Nordic Council of Ministers seeks to find new and innovative welfare solutions in the Nordic Region. This means solutions that may contribute to increased quality and equality in education, work and health for the 25 million in-habitants of the Nordic region.	**Desk research and interviews**
Others				
Reduce training duration	**Finland** (DAMVAD & Stockholm Gerontology Research Center, 2014)	**Not mentioned**	In Finland, the intervention concerned the education program for assistant practical nurse. **Barriers -** Not mentioned **Facilitators -** The Sustainable Nordic Welfare programme launched by the Nordic Council of Ministers seeks to find new and innovative welfare solutions in the Nordic Region. This means solutions that may contribute to increased quality and equality in education, work and health for the 25 million in-habitants of the Nordic region.	**Desk research and interviews**
Increased intake / Strategic focus on recruiting doctors and nurses Strategic focus on retaining doctors and nurses	**Iceland** (DAMVAD & Stockholm Gerontology Research Center, 2014)	**Not mentioned**	**Barriers -** Not mentioned **Facilitators -** The Sustainable Nordic Welfare programme launched by the Nordic Council of Ministers seeks to find new and innovative welfare solutions in the Nordic Region. This means solutions that may contribute to increased quality and equality in education, work and health for the 25 million in-habitants of the Nordic region.	**Desk research and interviews**
The Danish Healthcare Quality Programme	**Denmark** (Attree et al.,	**Not mentioned**	**Barriers -** Not mentioned	**Qualitative study**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	2011)		**Facilitators** - Not mentioned	
Target and Action Plan for Evidence Based Nursing (2004-2007) // The Government Programme (2007–2011)	**Finland** (Attree et al., 2011)	**Not mentioned**	**Barriers -** These healthcare improvement projects have been criticized as some are temporary, do not affect nurses' everyday working life and take nurses time out of nursing care. **Facilitators -** The Finnish Ministry of Social Affairs and Health, Ministry of Education and European Social Fund have developed and funded several small projects that aim to retain nurses in the regional workforce and improve healthcare.	**Qualitative study**
The Government of Ireland s (GoI 2001) National Plan Quality and Fairness: A Health System for You // Guidance for Best Practice on the Recruitment of Overseas Nurses and Midwives (GoI 2002b)	**Ireland** (Attree et al., 2011)	**Positive:** Nurses' roles were expanded in 2007 by national level Nurses and Midwives Prescribing Act and at local levels by initiatives including nurse/midwifery-led clinics.	**Barriers -** Not mentioned. **Facilitators -** The National Council for Professional Development of Nursing and Midwifery (2003) promoted continuous learning and improvement of staff nurses skills and experience.	**Qualitative study**
The National Nurses Association strategies	**Portugal** (Attree et al., 2011)	**Not mentioned**	**Barriers -** Not mentioned **Facilitators -** The Portuguese (Ministério da Saúde 2004) National Plan for Health 2004–2010 describes strategic orientations for the healthcare workforce: correction of regional asymmetries in the distribution of human resources, revision of salary systems of professional careers and creation of new models associating salaries with work results. Specializations of health workers (physicians, nurses and other health technicians) will be reviewed and national associations will be recognized.	**Qualitative study**
Agenda for Change (1999-2004) // Improving Working Lives in the NHS (1999)	**United Kingdom** (Attree et al., 2011)	**Not mentioned**	**Barriers -** Not mentioned **Facilitators -** In the United Kingdom workforce policies formed a major part of the National Health Service Modernisation Agenda, launched in 1997. NHS nursing workforce policies are similar across the UK and broadly follow the NHS Modernization Agenda principles. The NHS Plan (DoH 2000a,b,c) is a 10-year programme of healthcare reform; a number of NHS workforce policies (DoH 1999a,b, DoH 2001, 2002a,b, DoH 2000a, 2000b, 2000c) were implemented in the early 2000s. UK policies constituting the 10-year NHS Plan and NHS Modernisation Agenda address the main issues identified in the literature review as good practices.	**Qualitative study**
Transition to Practice Programs	**United Kingdom** (Procter et al., 2011)	**Positive:** Although contentious debates surrounding theory-practice gaps are likely to continue, gradual and	**Barriers -** Barriers include difficulty accessing training and a lack of funding. **Facilitators -** Not mentioned	**Focus groups** (Jones & Lowe, 2001)

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		sustained improvements to TTP programs are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs.		
Transition to Practice Programs	**United Kingdom** (Procter et al., 2011)	**Positive:** Although contentious debates surrounding theory–practice gaps are likely to continue, gradual and sustained improvements to TTP programs are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs.	**Barriers -** Graduates reported dissatisfaction with pay and paperwork, opportunities for professional development and aspects of work/life balance. **Facilitators -** MHN graduates experience positive experiences early in their careers, particularly with caregiving and working relationships.	**Longitudinal research design** (Robinson et al., 2005)
Transition to Practice Programs	**United Kingdom** (Procter et al., 2011)	**Positive:** Although contentious debates surrounding theory–practice gaps are likely to continue, gradual and sustained improvements to TTP programs are now being recognized, promoting them as an effective approach to the transitional challenges faced by newly graduated MHNs.	**Barriers -** Three types of constraints were identified: organizational in terms of lack of posts; professional constraints at an individual level and personal circumstances. Lack of positions was cited as the most significant constraint. **Facilitators -** MHN managers also play an important role in supporting newly qualified MHNs.	**Longitudinal research design** (Rungapadiachy et al., 2006)
Resident-oriented Care Model	**Netherlands** (Hodgkinson et al., 2011)	**Negative:** This study showed no effect of a primary-care nursing model on improving staff outcomes such as job satisfaction, absenteeism or staff turnover when	**Barriers -** The implications for research are extensive, with few identifiable controlled studies available evaluating any form of nursing model or skill mix in residential aged care. The two studies evaluated in this review provide less than convincing evidence of the effectiveness of a primary-care model compared with team nursing or usual care. **Facilitators -** Not mentioned	**Interrupted time series studies and studies with concurrent control designs**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		compared with a team-nursing mode. This was also the case with a study of a primary-care model described as “patient-oriented care” situated in three aged-care facilities in the Netherlands (Boumans 2005).		

3.3.1.1. Education and other related interventions

- **Nordic countries** (**Denmark, Finland, Iceland, Norway and Sweden**): A cross national review of policies to address the growing gap between demand for health services and the availability of health workers to respond to it, identified R&R issues as a major concern (DAMVAD & Stockholm Gerontology Research Center 2014). The report briefly describes various measures aiming at improving the attractiveness of health care work, particularly in vocational occupations. In Denmark, Finland and Norway, recruitment campaigns were conducted targeting students in general ("*White Zone*", "*Become a health worker*") and specifically males ("*Change job, not gender!*", "*Men in health care*", "*Strengthen care*"). In Finland, a shorter education programme for assistant practical nurse was introduced as part of the National Development Programme for Social Welfare and Health Care (Kaste). In Sweden, regional health and care colleges were created in 2012, to attract local young students and already educated candidates to the health sector; the "*Strengthening care of the elderly*" programme (2011-2014) supports municipal services to the elderly by subsidizing continuing education programmes for their health care staff willing to move to this area of work. All Nordic countries are reported to be concerned with R&R of nurses and physicians because of the gap between their capacity to produce more and forecasted needs. Norway is described as the country where R&R are more strategically designed and coordinated. In Finland, R&R in the health sector is dealt with within the framework of planning the whole workforce. In the other countries, R&R measures are described as "a patchwork of strategies and initiatives". This report is based on desk research, on inter-views of 3–7 key informants in each country (N=26) and on statistics from the Nordic Statistical Yearbook 2013. The lack of evaluations of these measures makes it difficult to comment on their effectiveness; for example, it does not say whether the recruitment campaigns were successful in attracting more candidates to the health professions and more men among them. The report only argues that studies of similar experiences have shown success in the UK, and therefore it can be expected that this will be the case in the Nordic countries as well.
- **Denmark, Finland, Ireland, Portugal and United Kingdom**; Attree et al. (2011) reviewed nursing workforce policies in five countries on the basis of the literature published between 2003 and 2007. Common policy themes were identified: improving retention through effective management and better practice environments; improving recruitment by attracting more new recruits and returners; and international recruitment. This does not imply that policies are in place to respond to these concerns. In **Denmark**, no policy targeting R&R

of nurses has been identified. On the other hand, at organisational level, coaching, supervision and mentoring, financial incentives are used as part of strategies of individual and team development. In **Finland**, the *Target and Action Plan for Evidence Based Nursing* (2004-2007) supported small projects to retain nurses at regional level; these include interventions to improve the attractiveness of the profession, to strengthen basic and continuing education, to review workloads and to facilitate job rotation and flexibility. In **Ireland**, in 2001, the *National Plan Quality and Fairness: A Health System for You* recommended integrated health workforce planning to improve quality of working lives and job satisfaction; to this end improved management was promoted. In 2007, nurses' roles were expanded to include some prescribing rights and the possibility to lead local nursing/midwifery clinics. In **Portugal,** no national policies were identified and most of the literature focused on diagnosing R&R problems. Individual provider organisations developed retention strategies but this remains undocumented. In the **UK**, *Agenda for Change* (1999-2004) modernised the NHS pay system to provide a new career structure, equal pay for equal work and payment for role and responsibilities rather than job title and length of service. The focus of NHS workforce policies has been improving pay and working conditions, including flexible work, improving retention and reducing sickness and absence rates, and providing childcare and other family-friendly measures. Other incentives included access to career and continuing professional development. The review indicates that there has been little empirical evaluation of the effectiveness of national, regional or local nursing workforce strategies in these five countries.

- **Netherlands**: In a systematic review, Hodgkinson, B. et al. (2011), report a case control study of two models of nursing care for the elderly in three nursing homes. The study showed no effect of a primary-care nursing model on improving staff outcomes such as job satisfaction, absenteeism or staff turnover when compared with a team-nursing model. This was also the case with a study of a primary-care model described as "patient-oriented care" situated in three aged-care facilities in the Netherlands.
- **United Kingdom**: A review of interventions to support mental health nurses entering the workforce analyses two studies on *Transition to Practice* programmes promoted as a strategy for improving R&R in mental health services (Procter et al. 2011). The first one investigated the post-registration education and training needs of qualified mental health nurses (MHNs), using focus groups with MHNs from four National Health Service trusts (n = 24) and a questionnaire to a random sample of MHNs members of Royal College of Nursing

(n = 874). The second one aimed at characterizing the challenges of the early career of nurses entering the mental health workforce. This was a longitudinal research design, with questionnaires administered at qualification, 6 months, 18 months and 3 years after graduation (n = 100) and of semi-structured interviews (n = 30). The authors observed that debates surrounding theory–practice gaps in the education of MHNs are likely to continue, that there have been gradual and sustained improvements in *Transition to Practice* programmes, and that these are recognised as an effective response to the transitional challenges faced by newly graduated MHNs.

3.3.2. Grey Literature

Table 8: Overview of documents reporting on education interventions: Grey Literature

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Attract additional or better fitting students to health training institutes				
Student selection: increase the age for entry into nursing	**Czech Republic** (European Observatory on Health Care Systems, 2000)	**Not mentioned**	In the Czech Republic it was found that younger girls often leave the profession. **Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Increase the capacity of health training institutes				
Expand domestic health training capacity	**Estonia** (Jesse et al., 2004) **France** (OECD, 2008; Chevreul et al., 2010). **Italy** (OECD, 2008) **Lithuania** (Rechel et al., 2006) **Norway** (Rechel et al., 2006; Johnsen, 2006) **Slovenia**	**Mixed:** In Italy, the places in nursing programmes have increased at a rate of at 2% annually since 2000. **Mixed:** In Lithuania the number of study places increased to 400 students per year. **Mixed:** In France, the number of places available in nursing schools went from 18 270 in 1999 to 30 000 in 2005. However, the number of suitable applications has not been sufficient to fill all positions, raising serious questions about the attractiveness of the profession. **Mixed:** In Norway, the number of physicians trained gradually increased, but this was insufficient to meet the demand. **Mixed:** In Estonia the intervention appeared not to be feasible due to a lack	**Barriers –** In Estonia there is lack of training capacity, mainly due to inadequate numbers of teaching staff; **Barriers -** In Italy, budget cuts have prevented the creation of more nursing positions; In France medical unions, the government, and the French Social Health Insurance (Sécurité Sociale) were in favour of decreasing the number of doctors as they thought that it would allow reductions in health expenditures. The number of applications for nursing training has not been sufficient to fill all positions, raising questions about the attractiveness of the profession; **Barriers -** In United Kingdom a large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides another straightforward example of a sudden change in demand for health professionals (OECD, 2008). Time lag for home based training- four years for a nurse to enter the workforce, and ten-twenty years for doctors and medical specialists, mean that this option was never likely to meet the short term staffing growth requirements of the NHS at the end of the last decade. The main constraint on the numbers of places available is educational capacity and funding from government for the places; **Barriers -** In Sweden, dental and medical education have both been	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	(Dussault et al., 2010) **Sweden** (Svensson et al., 2011) **United Kingdom** (Boyle, 2011; OECD, 2008; Rechel et al., 2006)	of financial and human resources (lack of teaching staff). **Mixed:** In Slovenia, personnel deficit is particularly challenging for the biggest hospitals and social care institutions, which all have problems in finding adequate numbers of nurses. This is still the case in spite of the recent establishment of a third nursing school in Izola (in 2003). Such a situation and trend led to the development of practical plans to establish a fourth nursing school in Jesenice (first students admitted in 2008). **Mixed:** In the UK, entry to medical schools has increased by 30%. The expansion of training places for doctors and nurses since 2000 has led to greater self-sufficiency in the workforce in England, resulting in the government changing immigration rules to make it more difficult for overseas staff (outside the EEA and Switzerland) to come to England to work. Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005. **Mixed:** In Sweden the medical faculties have been extended in 2009 but many informants still believe the extension is	undersized for a long period of time. Some of the informants feel this was done in order to produce a shortage and improve salaries and benefits. Another bottleneck is the difficulties of expanding the intake to the medical faculties and at the same time obtain the high quality that characterises the Swedish medical educational system. Some informants also claim that Sweden needs to educate physicians and dentists to provide not only the health sector with these professional groups but also to support the universities with teachers at medical and dental faculties. One particular constraint is the shortage of supervisors and positions for the mandatory general practice period for newly graduated physicians that they have to complete before being licensed physicians. There is likewise a shortage of specialist physicians to tutor the ones who are pursuing a specialist license. This creates long queues for both categories of training. **Facilitators –**In 1991, a master's course in nursing was established at the University of Tartu Faculty of Medicine for nurses with some work experience. By 1998, there were 52 graduates from this course. Forty new master's-level students were expected in 2004. These graduates are seen as the main resource for further training of basic and specialist nurses. Intensive consultations in which, by 2002, the Ministry of Social Affairs claimed that 3 physicians and 8 nurses per 1000 population should be the optimal goal to reach in 10 years (Ministry of Social Affairs, 2002) (Estonia); **Facilitators –** In France, medical deans considered that decreasing the number of doctors would cause difficulties in hospitals where there would be insufficient interns. Based on its medical demographic projections, the French Medical Association also began to argue for increases in the numerus clausus, and, in the beginning the 1990's, their concern found greater echo, and since then, the numerus clausus has been increased on a regular basis (Adapted from Cash and Ulmann, 2008); **Facilitators –** In 2001, the government announced funding for 1 033 more medical students in England. The places were allocated across 14 medical schools. Two new medical schools were to be created as a result of collaborations between Hull and York universities and between Brighton and Sussex. This followed on from the announced creation of another two new medical schools in 2000- at Plymouth and Exeter (the Peninsula Medical School) and at the University of East Anglia. These	

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		inadequate as large numbers of retirements and an increased population is expected. The insufficient number of students it slows down the process of graduating more dentists and physicians.	new schools were designed to meet regional shortages. This brought the number of medical schools in England to 21 (United Kingdom); **Facilitators –** In Lithuania a technical group for planning of human resources in health was created in 2000, projecting that the supply of physicians would decrease by 25% by 2015 if the enrolment of students remained at the level of 250 students per year; **Facilitators –** In Sweden criticism has been raised about insufficient numbers of students accepted to dentistry and medical education to meet future need.	
	Czech Republic (Sermeus & Bruyneel, 2010)	**Positive:** The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.	**Barriers -** The effect of the stabilization measures was smaller in private facilities (lower salaries, CPD – time off for studies) than in public facilities. **Facilitators -** This positive effect was certainly boosted by the overall unemployment and the return of nurses from other industries. Combined set of stabilization measures.	**Grey literature**
Providing more places for practical training /specialist /residency training	**Czech Republic** (Sermeus & Bruyneel, 2010)	**Positive:** The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.	In the Czech Republic, this was part of a package of interventions that also included: re-grading nurses to scale-up their salary; subsidizing the education for nurse specialists; shortening educational programs; support for nurses returning after maternity leave and workplace nurseries; and supporting continuous professional development by a system of credits/points. **Barriers -** The effect of the stabilization measures was smaller in private facilities (lower salaries, CPD – time off for studies) than in public facilities. **Facilitators -** This positive effect was certainly boosted by the overall unemployment and the return of nurses from other industries. Combined set of stabilization measures.	**Grey literature**
Health training in the targeted area				

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Undergraduate clinical experience or post-graduate residency in target geographical areas	**France** (Chevreul et al., 2010)	**Mixed:** Although regional disparities have been reduced over the past 30 years, policies intended to influence the regional numbers of medical students have not always had the expected results. In fact, only 69% of doctors practise in the region where they did their training, and many specialists find internships in regions where there are fewer doctors and then return to their region of origin to practise (France).	**Barriers -** After graduation, there is no restriction on the areas where doctors are allowed to practise. **Facilitators -** These grants can also be designed to ensure that trainee physicians end up practising in a particular region. During their third cycle studies, they can receive up to €24,000, on condition that they undertake to practise in a region in which there is a deficit of healthcare professionals for a period of up to 6 years. Since 2005, Burgundy's Regional Council has been inviting nurses, physiotherapists and midwives to enter into a contrat réciprosanté - a reciprocated healthcare agreement - within the framework of its professional training initiatives. This scheme has been introduced alongside the allocation territoriale d'études - the regional study allowance - and commits these future healthcare professionals to practising for periods of between one and three years in the Burgundy region when they finish their training. The healthcare or social-welfare centre where they do this is the centre which will have contributed to financing their allowance. From their second year of studies onwards, students receive (in addition to their training allowance): - €465 per month if they sign a contract with an urban-based hospital or clinic, - €600 per month if they sign a contract with a social-welfare, geriatric or psychiatric unit or one that is based in a rural community or in a community that is considered "fragile".	**Grey literature**
Others				
Competence-based curriculum development	**Germany** (Steinhaeuser et al., 2013)	**Not mentioned**	**Barriers -** Skills and procedures currently required in general practice training are not determined by a general practice professional or academic body but are set by the State Medical Associations of Germany, based on generalized standards without a primary care or general practice specialty focus. A major disadvantage with this current general practice training curriculum is the lack of formalized structure and an element of chance related to practice experience in terms of what an individual trainee learns. **Facilitators -** Under current German law, the State Medical Associations of Germany (Landesärztekammern) are in charge of setting postgraduate educational standards in Germany. This includes general practice training, which as it presently stands, is a five year training program, encompassing a "volume- and time-based curriculum". The time-based component requires five years of training, after which an application for examination as a GP can be made. The volume-based component is structured around a catalogue of skills and procedures that have to be accomplished and confirmed by the trainer.	**A five-step, peer-based method**
Clinical role of nurse lecturers	**United Kingdom**	**Not mentioned**	**Barriers -** Notably, a lack of role definition causes confusion and stress amongst individual lecturers regarding expectations (Gilmore, 1999;	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	(Barrett, 2007)		Clifford, 1999). Difficulties in carrying out link tutor duties are exacerbated by the limited time available to lecturers due to competing demands. (Pegram and Robinson, 2002; Landers, 2000; Murphy, 2000). More worryingly, many lecturers report that resistance by clinical nurses themselves inhibits their role in practice settings. **Facilitators -** In response to concerns about the clinical competence of students completing Project 2000 programmes, 'Making a Difference' (Department of Health (DH), 1999) and 'Fitness for Practice' (UKCC, 1999) provided the catalyst for the development of a new pre-registration curriculum. In these documents, it was suggested that nurse lecturers should have recent and practical nursing experience (DH, 1999) and demonstrate clinical confidence and competence, which could be maintained by spending time in practice (UKCC, 1999).	
London Initiative Zone Educational Incentives (LIZEI)	**United Kingdom** (Hull et al., 2000)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Observational practice-based study**
Lifelong learning framework	**United Kingdom** (Baumann et al., 2006)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators -** Department of Health (2001) 'Working together – learning together:' A framework for lifelong learning for the NHS.	**Grey literature**
The Good Practice Guidance for Recruitment, Selection and Retention	**United Kingdom** (Sabin et al., 2012)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Table 9: Overview of documents reporting on financial incentives: Grey Literature

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Financing structure				
Reform the employment system to a	**Poland** (Kołodziejska et al., 2012)	**Negative:** Previous experiences show that hospital directors have not had enough resources to employ the medical carers	**Barriers -** Previous experiences show that hospital directors have not had enough resources to employ the medical carers **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
contract-based model		and in fact the work overload of nurses remains the same.		
Contracts with group practices	**Germany** (Ono et al., 2014)	**Positive:** In 2011, there were 1 750 community health centers; 14.6% were located in rural areas and these are considered to hold potential for further expansion in rural areas because the advantages of establishing or joining such a center are more pronounced there than in urban areas, in terms of less heavy workload and better income	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	France (Ono et al., 2014)	**Positive:** Working conditions, such as number of hours worked, are better than for single practitioners, an incentive that attracts physicians, nurses and other health professionals.	**Barriers –** Not mentioned **Facilitators -** The Ministry of Health has introduced multi-professional infrastructures called "*Maisons de santé multidisciplinaires*" in 2007.	**Grey literature**
Increase in salaries				
Implementation of salary increases	**Czech Republic** (Buchan & Black, 2011)	**Positive:** The improvement in pay and conditions of Czech nurses working for government hospitals in 2009 occurred at the same time as reductions in vacancies, an increase in overall staffing numbers and an increase in intakes to nurse training. While it is likely that the two issues are connected, causality cannot be demonstrated with available data sets, and broader economic changes may also have been a factor in these changes.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Czech Republic (Sermeus & Bruyneel, 2010)	**Positive:** The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Domestic programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact, but no lasting effect in the medium to long term (Bourgueil et al., 2006) possibly because wage increases s alone cannot compensate for lack of facilities and for	In the Czech Republic, this intervention was combined with additional measures such as continuous professional development, subsidised education, shortened education programmes and places for practical training, support to return after maternity leave, child-care and improved monitoring of the nursing workforce. **Barriers -** The effect of the stabilization measures was smaller in private facilities (lower salaries, CPD – time off for studies) than in public facilities. **Facilitators -** This positive effect was boosted by the overall unemployment and the return of nurses from other industries. Combined set of stabilization measures.	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		lack of access to good education for doctors' and nurses' families. It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006).		
	Malta (Rechel et al., 2006)	**Positive:** One of the most successful strategies in redressing imbalances in the workforce supply.	In Malta, the increase in salaries was implemented in combination with financial incentives, upgrading courses, improved status, flexible working hours and a child-care center. **Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Hungary (Gaál, 2004)	**Not mentioned**	In Hungary, the increase in salary was implemented jointly with a loyalty bonus. **Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Implementation of salary increases	**Lithuania (**Rechel et al., 2006)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Iceland (International Council of Nurses (2013; Friðfinnsdóttir, E., & Jónsson, J. (2010)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Estonia (Lai et al., 2013)	**Mixed:** Due to the economic recession, the health care budget in Estonia has not increased since 2008. This has constrained the capacity of health institutions to invest in facilities or technologies, particularly because priority has been given to salary increases in order to retain health professionals.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Negotiations for a new collective agreement	**Finland**	**Positive:** The nursing wage agreement in Finland covering the period to the end of 2010 was accompanied by an increase in both the number of nurses employed as	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	(Buchan & Black, 2011)	well as the number of applications to nursing education programmes. A new agreement in 2011 will mean that all municipality employees, including nurses, will receive a 1.2% pay rise plus an additional amount of approximately 0.8% to be negotiated locally.		
Pay-related policies	**United Kingdom** (OECD, 2008)	**Mixed:** Pay increases for doctors in the United Kingdom, implemented as part of a new contract for hospital consultants in 2003, seem to have increased consultant numbers (Buchan, 2008). But they also led to significant cost increase (NAO, 2007). Domestic programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact, but no lasting effect in the medium to long term (Bourgueil et al., 2006) possibly because wage increases alone cannot compensate for lack of facilities and for lack of access to good education for doctors' and nurses' families. It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006).	**Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides another straightforward example of a sudden change in demand for health professionals. **Facilitators -** Implemented as part for a new contract for hospital consultants.	**Grey literature**
Agenda for Change: Modernising the NHS Pay System	**United Kingdom** (Buchan & Black, 2011)	**Mixed:** The results reported here have demonstrated that there was some positive change, overall, for UK nursing labour markets after implementation of Agenda for Change in 2006, but that the process of implementation itself raised expectations that were not fully met for all NHS nurses. There were also clear signs of differential impact and experiences, with some categories of nurse being less satisfied with the process of implementation. The clear message is that the potential benefits of a new pay system in a national service can only be	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		maximised by effective communication, adequate funding and consistent management.		
Young GPs earn higher salaries than hospital doctors	**Denmark** (Olejaz et al., 2012)	**Not mentioned**	In Denmark, increased payment was accccompanied by improved social and professional environments (group practices), and recognition of general practice as a specialty with increasing number of scientific activities. **Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Large salary increases	**Norway** (Rechel et al., 2006)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators** - Hospital Reform of 2002.	**Grey literature**
Incentives and allowances				
Contrat réciprosanté and Contrat d'engagement de service public	**France** (Chevreul et al., 2010)	**Mixed:** Although regional disparities have been reduced over the past 30 years, policies intended to influence the regional numbers of medical students have not always had the expected results. In fact, only 69% of doctors practise in the region where they did their training, and many specialists find internships in regions where there are fewer doctors and then return to their region of origin to practise (France).	**Barriers -** After graduation, there is no restriction on the areas where doctors are allowed to practise. **Facilitators -** These grants can also be designed to ensure that trainee physicians end up practising in a particular region. During their third cycle studies, they can receive up to €24,000, on condition that they undertake to practise in a region in which there is a deficit of healthcare professionals for a period of up to 6 years. Since 2005, Burgundy's Regional Council has been inviting nurses, physiotherapists and midwives to enter into a contrat réciprosanté - a reciprocated healthcare agreement - within the framework of its professional training initiatives. This scheme has been introduced alongside the allocation territoriale d'études - the regional study allowance - and commits these future healthcare professionals to practising for periods of between one and three years in the Burgundy region when they finish their training. The healthcare or social-welfare centre where they do this is the centre which will have contributed to financing their allowance. From their second year of studies onwards, students receive (in addition to their training allowance): - €465 per month if they sign a contract with an urban-based hospital or clinic, - €600 per month if they sign a contract with a social-welfare, geriatric or psychiatric unit or one that is based in a rural community or in a community that is considered "fragile".	**Grey literature**
Interest-free loans and subsidies	**Belgium** (Gerkens & Merkur, 2010)	**Positive:** About 5% of active GPs have already used this procedure.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Non-wage-related payments (one-off payment)	**Germany** (Ono et al., 2014)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators -** Eleven out of 16 federal states (*Länder*) offer financial incentives for GPs opening their practice for the first time, in designated shortage areas. Costs are either shared between the state government, the association of statutory health insurance physicians and insurance companies or borne entirely by one of these stakeholders.	**Grey literature**
GPs receive a financial bonus for postponing their retirement	**Denmark** (Ono et al., 2014)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Supplementary allowance	**Spain** (Rechel et al., 2006)	**Negative:** Efforts to keep doctors in the public sector on a full-time basis have not been successful. For primary care specialists, salaries remain below the salaries of specialists working in hospitals.	**Barriers -** Overall, there are too many institutions with different interests involved in the process of decision-making on human resources in the health sector. In the present situation, it is difficult to gain consensus on the necessary number of physicians or nurses and to coordinate the centralized regulation of education, training and working conditions with the decentralized provision of health care. Necessary reforms are being blocked by trade unions and professional associations. **Facilitators -** The decentralization of health care organization has resulted in salary increases for all specialties.	**Grey literature**
Financial compensation	**Bulgaria, Croatia, France, Lithuania, Romania, Spain, Sweden and Greece** (World Health Organization Regional Office for Europe, 2011b; World Health Organization Regional Office for Europe, 20112011a)	**Mixed:** The impact that the 20% increase in the cost of consultations with physicians who are part of a practice introduced in 2006 has not yet been gauged (MOHPROF). Preliminary evaluations suggest that financial incentives alone are less effective than measures including organizational changes aimed at increasing satisfaction at work (Bourgueil et al. 2006 in HSIT 2010) (France). **Negative:** The financial incentives have been too low to result in substantial changes in the regional distribution of nurses (Lithuania).	**Barriers –** Not mentioned **Facilitators -** Financial compensation was paid through the National Health Insurance Fund for GPs working in remote areas.	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Others				
Increased absorption (recruitment) by the health sector	**Greece** (Economou, 2010)	**Negative:** These measures were clearly defined, moved in the right direction and constituted a significant change to the existing situation. However, they were never implemented. Greece faces major geographic imbalances in the supply of doctors. No successful policies have been adopted to attract and retain physicians in rural areas; and despite financial incentives these have not been enough to rectify the situation. Today, most physicians are located in metropolitan areas, leading to major inequalities in the provision of health services.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Table 10: Overview of documents reporting on professional and personal support: Grey Literature

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
ADDRESSING A SENSE OF ISOLATION OR DEPRIVATION WHEN WORKING IN REMOTE AREAS				
Telemedicine and distance learning	**Austria** (WHO, 2011)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators -** Thanks to its outstanding image quality, this technique has the potential to increase the diagnostic capacity of health workers in rural and remote areas.	**Grey literature**
	Germany (OECD, 2010)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Norway (Rechel et al., 2006)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	Romania (World Health Organization Regional Office for Europe, 2011b)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Provision of housing and other personal support	**Romania** (World Health Organization Regional Office for Europe, 2011b)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Slovenia (World Health Organization Regional Office for Europe, 2011b)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
ADDRESSING THE DIFFICULTY OF COMBINING PROFESSIONAL AND PERSONAL LIFE (CARE OF CHILDREN OR OF FAMILY MEMBERS, AGEING): FAMILY-FRIENDLY POLICIES AND PROMOTING A HEALTHY WORK-LIFE BALANCE				
Return-to-practice programmes for nurses or physicians who suspended or cancelled their registration	**Ireland** (Buchan, 2009; WHO, 2010)	**Positive:** Reportedly with some success.	**Barriers –** Not mentioned **Facilitators -** The courses are delivered as full-time or part-time programmes. Many of the courses are being delivered on a flexible, part-time basis. Flexibility in the choice of hours has reportedly been a key incentive in attracting applicants back to nursing. Most applicants have been local, giving the hospitals a stable source of new recruits. In addition, employers value the life experience that these mature re-entrants bring to their work. Trends over time also suggest that a weak economy encourages nurses to re-enter the health workforce (Aiken and Mullinix, 1987).	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	United Kingdom (OECD, 2008; Rechel et al., 2006)	**Mixed:** Over the past few years, the annual number of nurses and midwife returnees is estimated around 3 800 or 1% of the total number of qualified nurses and midwives, but there is no indication of any upward trend (Buchan, 2007). Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005. Although overall nursing numbers have increased, it is less clear whether the growing number of nurses is in the "right" place or has the "right" skills.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Family-friendly policies and flexible working arrangements: - Childcare support or on-site nursery facilities; - Attractive maternity leave and annual leave arrangements; - Introduce the possibility to work part-time; - Flexible working hours; - Employee-led rostering; - Allow for additional leave	**United Kingdom** (Bryar et al., 2012)	**Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.	**Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals. **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
days; or - Provide compensation for working overtime; - Flexible working hours and a child care centre	**United Kingdom** (OECD, 2008)	**Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Malta (Rechel et al., 2006)	**Positive:** One of the most successful strategies in redressing imbalances in the workforce supply.	**Barriers -** While Malta faces many of the issues encountered in developing human resources in health in other European countries, it exhibits some peculiar features, such as its geographical position and its history of turbulent industrial relations. In addition, the country faces the challenges of a thriving private sector staffed mainly by public sector employees and the emigration of newly graduated doctors to the United Kingdom and the United States. Many future improvements in the area of human resources in health hinge on delivering sustained financial benefits. In the present difficult economic situation, however, these changes will be hard to achieve. **Facilitators** - Regular meetings between the Government and the trade unions have gone a long way towards building trust between the various parties. Their formalization at the national and local level would be an important step forward.	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
	Czech Republic (Buchan & Black, 2011)	**Positive:** The improvement in pay and conditions of Czech nurses working for government hospitals in 2009 occurred at the same time as reductions in vacancies, an increase in overall staffing numbers and an increase in intakes to nurse training. While it is likely that the two issues are connected, causality cannot be demonstrated with available data sets, and broader economic changes may also have been a factor in these changes.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Ireland (Buchan, 2009)	**Mixed:** The study of job satisfaction among nurses in Ireland shows low-to-moderate job satisfaction levels. Among the developments that have had a positive influence on job satisfaction of health professionals are flexible work arrangements, development and training opportunities as well as the support structure for staff use.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Czech Republic (Sermeus & Bruyneel, 2010)	Positive: The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Flexible retirements plans or special employment conditions for older workers: - exemption from night and week-end shifts for older workers;	**Belgium** (OECD, 2008; Gerkens & Merkur, 2010)	**Positive:** A number of hospitals have experienced better nurse retention.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	France (OECD, 2008)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
- working part-time while preserving salary after reaching a certain age ('end-of-career working time reductions'); - step down into more junior roles; - retire and come back (part-time, full-time or seasonally); or - work for limited periods	**United Kingdom** (OECD, 2008)	**Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.	**Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals (OECD, 2008). **Facilitators –** Not mentioned	**Grey literature**
IMPROVING THE PRACTICE ENVIRONMENT: MAKING MANAGEMENT AND ORGANIZATIONAL CULTURE MORE RESPONSIVE				
Strengthening representation of women at senior clinical and management levels	**Malta** (Rechel et al., 2006)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators -** European accession, European working time directives, European Social Fund support.	**Grey literature**
Zero tolerance on violence against staff	**United Kingdom** (Bryar et al., 2012; WHO, 2010)	**Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.	**Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals (OECD, 2008). **Facilitators -** Not mentioned	**Grey literature**
		Mixed: Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in	**Barriers –** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals (OECD, 2008). **Facilitators -** The Department of Health is committed to improving the quality of the working lives of all NHS staff, as evidenced by the creation of an Improving Working Lives Standard (IWL). The IWL establishes	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Improve working conditions in general	**United Kingdom** (Baumann et al., 2006; OECD, 2008)	2005.	benchmarks for all NHS employers to follow (Department of Health, 2000b), and includes employment practices such as childcare support, flexi-time, flexible retirement, and a healthy workplace. Funding to support its implementation has been made available. In addition to the IWL, the NHS has a human resources plan in place. This plan is intended to make the NHS an exemplary employer, ensure it provides a model career for its staff, improve employee morale, and build people management skills (Department of Health, 2002b). The NHS is dedicated to providing lifelong learning for its employees and has a zero tolerance policy on violence against staff (Department of Health, 2001; National Task Force on Violence Against Social Care Staff, 2001).	
ENSURING A MODEL CAREER FOR STAFF: PROVIDING PROFESSIONAL DEVELOPMENT OR CAREER OPPORTUNITIES				
Improved access to university study or specialization	**Bulgaria** (World Health Organization Regional Office for Europe, 2011b)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Czech Republic (Sermeus & Bruyneel, 2010)	**Positive:** The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.	**Barriers -** The effect of the stabilization measures was smaller in private facilities (lower salaries, CPD – time off for studies) than in public facilities. **Facilitators -** This positive effect was boosted by the overall unemployment and the return of nurses from other industries. Combined set of stabilization measures.	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Increasing possibilities for continuous professional development (CPD) and training, and allowing for flexibility in training opportunities so that CPD can be combined with work or other tasks (e.g. e-learning)	**United Kingdom** (OECD, 2008)	**Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005 (United Kingdom).	**Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals (OECD, 2008). **Facilitators -** Flexibility is an important factor, especially given the growing feminisation of the medical workforce.	**Grey literature**
	Czech Republic (Sermeus & Bruyneel, 2010)	**Positive:** The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.	**Barriers -** The effect of the stabilization measures was smaller in private facilities (lower salaries, CPD – time off for studies) than in public facilities. **Facilitators -** This positive effect was boosted by the overall unemployment and the return of nurses from other industries. Combined set of stabilization measures.	**Grey literature**
	Denmark (Fujisaw & Colombo, 2009).	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
Allowing staff to dedicate time to research	**Sweden** (Svensson et al., 2011)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators -** The Swedish health care system is tax-funded and heavily decentralised.	**Grey literature**
Increasing possibilities for and flexibility in career development opportunities, such as flexibility in the distribution of nursing tasks and job rotation	**Norway** (Rechel et al., 2006) **Spain** (Rechel et al., 2006) **United Kingdom** (OECD, 2008)	**Negative:** Failed to change the status quo significantly (Spain). **Mixed:** Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from	**Barriers -** Necessary reforms are being blocked by trade unions and professional associations (Spain). **Barriers -** A large and sustained rise in public spending on the NHS, a few years after the election of the Labour Party in the United Kingdom in 1997, provides an example of a sudden change in demand for health professionals (United Kingdom). **Facilitators -** Flexibility is an important factor, especially given the growing	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
		about 22 000 in 1997 to almost 39 000 in 2005 (United Kingdom).	feminisation of the medical workforce (United Kingdom).	
ENHANCING STAFF RECOGNITION AND STATUS				
Increasing recognition of general practice as a specialty and supporting research in that field	**Bulgaria** (World Health Organization Regional Office for Europe, 2011b) **Denmark** Olejaz et al. (2012) **Estonia** (Jesse et al., 2004) **Romania** (World Health Organization Regional Office for Europe, 2011b)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
Raising the status of nurses by increasing their responsibilities, let them work autonomously and be responsible for their own work planning.	**Estonia** (Jesse et al., 2004)	**Positive:** In hospitals, nurses and nursing are increasingly being acknowledged independently, by doctors as well as by patients.	**Facilitators -** Health Services Organization Act gives nursing care a legally well-defined status on a par with primary, specialist and emergency care.	**Grey literature**

Table 11: Overview of documents reporting on regulation interventions: Grey Literature

Intervention	Countries	Effectiveness of the intervention	Barriers, facilitators and contextual factors to take into account	Type of evidence
REGULATION OF THE ROLE OF NURSES AND THE PRACTICE LOCATION				
Upgrade the role of nurses	**Cyprus** (Delamaire & Lafortune, 2010)	**Not mentioned**	**Barriers -** Five main factors have facilitated the development of advanced roles for nurses: 1) demand from nursing associations, 2) support of patients, 3) government funding to support new roles, 4) ability of the education system to provide additional training, 5) health care reform proposals promoting advanced practice nursing roles. The main barrier is government legislation concerning, for instance, the right to prescribe drugs. **Facilitators -** There are six main drivers behind current efforts to promote more advanced practice roles for nurses in Cyprus: 1) improving access to services, 2) promoting quality and continuity of care, 3) responding better to changing patient needs, 4) containing the growth in health costs, 5) growing education level of nurses, and 6) team work becoming more important in the health sector. Promoting career progression of nurses is also an important factor explaining the development of advanced roles of nurses.	**Grey literature**

	Belgium (Delamaire & Lafortune, 2010)	**Not mentioned**	**Facilitators -** The demand from nursing associations is an important factor supporting the implementation of more advanced practice roles for nurses. To a lesser extent, the position of healthcare managers may also encourage the development of these new roles. **Barriers -** On the other hand, the position of medical associations is the most important barrier, as in many other countries. Doctors in primary care mainly work in solo practices and are paid on a fee-for-service basis, which is not conducive to the development of more advanced nursing roles. In addition, the involvement of many stakeholders in the health system, in the three communities and the federal levels, does not facilitate legislative and other changes at the national level.	**Grey literature**
	Spain (Delamaire & Lafortune, 2010)	**Not mentioned**	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**
	Czech Republic (Delamaire & Lafortune, 2010)	**Not mentioned**	**Barriers -** The two major barriers are the position of medical associations and the remuneration methods of doctors. **Facilitators -** The key factors behind current interests in promoting more advanced practice roles of nurses include a shortage of health human resources (mainly doctors), the need to improve access to care and the quality/continuity of care in order to respond better to changing patient needs.	**Grey literature**
	Finland (Delamaire & Lafortune, 2010)	**Not mentioned**	**Barriers -** The development of advanced roles for nurses has been supported through cooperation between the Ministry of Health, municipalities (which are responsible for health centres), and polytechnics (institutions providing tertiary education in nursing and other fields). Two main factors have facilitated their development: 1) the ability of the education system to train nurses in more advanced roles; and 2) government funding for municipalities to support the development of task shifting and advanced roles of nurses. On the other hand, while physicians at the local level have tended to be very supportive of advanced practice nursing projects, the position of medical associations has not always been supportive. Finally, the present legislation on professional practice in health care is also considered to be a barrier to the development of advanced roles of nurses, in that it limits their scope of practices. **Facilitators -** The key factors behind current interest in promoting more advanced roles of nurses are a shortage of doctors and the need to improve access to care. The need to improve quality/continuity of care in order to respond better to changing patient needs is also important (patient education is particularly important in the context of growing chronic diseases). Containing the growth in health cost is another important reason for the development of such new roles.	**Grey literature**

	France (Delamaire & Lafortune, 2010)	**Positive:** The ONDPS (French National Observatory on the Demography of Health Professions) and HAS (French "High Authority in Health"), which assessed the initial pilot projects, concluded that: "All the projects presented show that it is possible for non-medical workforce to perform medical acts without danger to patients through a reorganisation of the work process and close collaboration with doctors" (HAS, 2008).	**Barriers -** In a system with fee-for-service payment, there is reluctance from doctors' unions to delegate tasks to other health professionals such as paramedics, as this has the potential to have a negative impact their income (HSIT online). The responsibility for defining the scope of practice of health professions is very much centralised, but one of the barriers to the expansion of the role of nurses is that current national legislation defines in specific terms what each health profession can (or cannot) do. **Facilitators -** Skill mix and especially the delegation of tasks from physicians to other health- care professionals are considered as important issues by the Ministry of Health. A constant effort to improve the continuity and quality of care, as well as the need to adapt to changing patient needs, are also contributing factors.	**Grey literature**
	Ireland (Delamaire & Lafortune, 2010)	**Positive:** Two evaluations have already been conducted in Ireland, concluding that advanced practice nurses are safe practitioners in primary care.	**Barriers -** the INO reports that the cost of the 37 initiatives proposed to date far exceeds this allocation. This means that funding will be a constraint on the number of pilots that can be undertaken; it may also be a factor in determining a pilot's success. Inadequate funding, or funding made available only in the short term, may prevent long term success. **Facilitators –** Five main factors have facilitated the development of advanced practice roles for nurses in Ireland: 1) the support of medical associations (which contrasts sharply with the situation in many other countries), 2) the support of health care managers, 3) government legislation, 4) government funding to support new roles, 5) the ability of the education system to train nurses.	**Grey literature**
	Poland (Delamaire & Lafortune, 2010)	**Not mentioned**	**Barriers -** The main factor which has facilitated the development of advanced roles for nurses is the demand from nursing associations. On the other hand, four main barriers have been identified: 1) the opposition of medical associations, 2) the government legislation, 3) the government funding to support new roles, and 4) the remuneration methods of doctors. **Facilitators -** Cost-containment pressure is a key factor motivating the development of more advanced practice roles of nurses in Poland. The need to improve both access to care and the quality/continuity of care to respond better to changing patient needs are also important reasons encouraging the development of new roles.	**Grey literature**

	United Kingdom (Buchan & Calman, 2005; Boyle, 2011; ICHRN, 2012; Delamaire & Lafortune, 2010)	**Mixed:** While such skill mix changes may compensate for shortages of doctors, they might increase nurse shortages. Nurses in advanced roles have been widely used in response to the challenges presented by the 2004 European Working Time Directive regulations. In evidence to the Health committee in 2007 Department of Health told the Committee that, in total, more than 100 new and extended clinical roles have been introduced in recent years (House of Commons, Health Committee, 2007).	**Barriers -** Despite its popularity and relative success, task-shifting and the use of auxiliary cadres face resistance from health professionals associations (McPake and Mensah, 2008). Three main factors have facilitated the development of advanced roles for nurses: 1) the demand from nurse associations; 2) the support of health care managers; 3) the ability of the education system to provide the required training. While the attitudes of patients were initially a barrier, this has evolved over time and patients have become generally supportive of advanced nursing roles. **Facilitators -** Buchan and Calman identified the following major facilitators in introducing / expanding use of APNs in England: Governmental/ political support for use of new roles (6); Attitudes of patients (5); General legislation for changes (5). Factors most commonly regarded as a major Facilitator in the US: Attitudes of nurses (11) Nursing profession led changes (10) Nursing professional regulation (9).	**Grey literature**
Regulation of the practice location of health professionals	**France** (Chevreul et al., 2010; Drexler & Rusu, 2011)	**Not mentioned**	**Barriers -** Attempts to restrict freedom of settlement have faced strong opposition from professional associations. A physician is free to settle wherever in France, and this is a firmly rooted principle for the physician profession since 1928. As a result, the disparity between regions at both extremes of the scale was 1 to 1.6 in 2008. **Facilitators -** Provision for meeting this need has been made in the "Hospital, Patients, Health, Regions" law72 which was promulgated in July 2009: henceforth, a study that looks five years into the future should determine the number of students after the competitive hospital training exam (National entrance exam) that should be trained per specialist field, particularly general medicine, and per regional subdivision "in view of the demographic change affecting the medical profession in the various specialist fields concerned and in view of this change with regard to specialist care".	**Grey literature**
	Norway (Rechel et al., 2006)	**Mixed:** Nevertheless, recruiting general practitioners to northern Norway has become increasingly difficult. In 1997, 28% of all positions in primary health care in the three most northern counties of Norway were vacant, with a vacancy rate of 37% in the small municipalities with a population of less than 4000. The insufficient coverage of health services is in part compensated by visiting personnel (often on expensive short-term contracts) and by physicians on internships.	**Barriers –** Not mentioned **Facilitators –** Not mentioned	**Grey literature**

3.3.2.1. Education interventions

In the category "education interventions", 17 interventions from 10 countries were identified, at policy level. Most interventions consisted of measures to attract, train and retain nurses and physicians to address existing or forecasted shortages or imbalances in the distribution of these health professionals. Such interventions were reported in 10 countries: Czech Republic, Estonia, France, Germany, Italy, Lithuania, Norway, Slovenia, Sweden and United Kingdom).

- **Czech Republic**: In 2009, the government adopted a package of interventions to address a growing shortage of nurses. These included: re-grading nurses to scale-up their salary ; subsidizing the education for nurse specialists; shortening educational programmes; providing more places for practical training, support for nurses returning after maternity leave and workplace nurseries; supporting continuous professional development by a system of credits/points (Sermeus, Bruyneel 2010).
- **Estonia**: in 2004, the Ministry of Social Affairs proposed expanding nurse training as a strategy to address the nursing shortage that threatened the implementation of hospital reform. By then, 28% of nurses were 50 years or older. The objective was to train 7000 new nurses by 2015 to meet the target of 10 nurses per 1,000 inhabitants. The annual intake of student nurses needed to be 600, but the lack of financial and human resources (lack of teaching staff) did not make it possible and it remained at 300–320 students for a decade (Jesse et al, 2004).
- **France**: a number of measures have been developed to address the anticipated shortage of physicians and nurses. The numerous clausus setting the number of admissions to medical studies has been increased from 4,700 in 2002 to 7,100 in 2007, and the number of places available in nursing schools went from 18,270 in 1999 to 30,000 in 2005; however, the number of suitable applicants has not been sufficient to fill all positions, raising serious questions about the attractiveness of the profession (OECD – 2008; Chevreul et al 2010).
- **Germany:** a competence-based curriculum for general practice covering a standard set of competencies from a GP point of view was developed. An official "test version" of the curriculum consisting of three parts: medical expertise, additional competencies and medical procedures was established. A system of self-assessment for trainees was integrated into the curriculum using a traffic light scale. Since March 2012, the curriculum has been made freely available online as a "test version". In 2014, an evaluation was planned, using feedback from users of the test model as a further stage of the implementation process. An important feature of this process is that peer trainers and trainees were

actively involved in the drafting, which increases the likelihood of "ownership" and acceptance of the curriculum. Results regarding the feasibility of implementation will be available following the planned evaluation (Steinhaeuser et al 2013).

- **Italy**: places in nursing programmes have increased at a rate of at 2% annually since 2000 (OECD, 2008).
- **Lithuania**: starting in 2002, the number of places in medicine programmes was increased from 250 to 400 per year (Rechel, Dubois et al, 2006).
- **Norway**: the increase in the number of physicians trained has gradually increased in the 1990, with an impact on the health labour market felt at the beginning of the 2000s. However, this has not been sufficient to meet the demand and recruitment from abroad, mainly from neighbouring countries, continued (Rechel, Dubois et al, 2006; Johnsen, 2006).
- **Slovenia**: a "numerus clausus" for medical, dental, pharmacy and nursing students is proposed each year by the Government to Parliament which has the last word. There have been several attempts to make Slovenia "self-sufficient", by scaling-up the capacity for the education of health professionals. A second medical faculty in Maribor was opened in 2003 and four additional nursing schools were created between 2003 and 2008 (Dussault et al., 2010).
- **Sweden**: Since 2009, medical faculties have been expanded their capacity to train more students (Svensson et al, 2011).
- **United Kingdom**: in 2001, the government announced additional funding for 1 033 more medical students in England in 14 medical schools. Two new medical schools were to be created as a result of collaborations between Hull and York universities and between Brighton and Sussex. This followed on from the announced creation of new schools in 2000 at Plymouth and Exeter (the Peninsula Medical School) and at the University of East Anglia. These new schools were created to meet regional shortages. This brought the number of medical schools in England to 21 (Boyle, 2011; OECD – 2008; Rechel, Dubois et al., 2006)

Other education interventions dealt with the modalities for educating health professional:

- **Czech Republic**: the age for entry into nursing was raised to 19 years (after graduation from high school) to reduce high attrition rates of students starting at too early an age –as early as 15 (European Observatory on Health Care Systems, 2000). Also, the duration of educational programmes was reduced (Sermeus, Bruyneel 2010);

- **France**: internships have been developed in regions with a shortage of physicians (Chevreul et al, 2010);
- **United Kingdom**: a *Clinical role of nurse lecturers* was developed at the time of *Project 2000* (Barrett, 2007). The *Good Practice Guidance for Recruitment, Selection and Retention* seeks to support Higher Education Institutions (HEIs) in Scotland to develop recruitment, selection and retention strategies for students in all branches of nursing and midwifery (Sabin et al, 2012); *London Initiative Zone Educational Incentives (LIZEI)* was introduced in the 1990's for a three-year period to improve recruitment, retention, and educational opportunities for general practitioners working in inner London (Hull et al, 2000); *Lifelong learning framework* was designed to help NHS staff develop their skills to support changes and improvements in patient care, to take advantage of wider career opportunities, and realize their potential. (Baumann et al, 2006).

3.3.2.2. Financial incentives

In the category "financial incentives", 29 interventions were described in the grey literature. These were implemented in 20 countries. The main objectives of offering financial incentives were to improve the attraction and retention of health workers in general (7 papers), in rural and underserved (8 papers), in certain specialities (4 papers), or in the public sector (2 papers). Most interventions consisted of paying allowances or increasing salaries. One intervention was to create more posts.

- **Belgium**: interest-free loans and subsidies were offered to doctors starting a GP practice (Gerkens and Makur, 2010).
- **Bulgaria, Croatia, France, Lithuania, Romania, Spain, Sweden and Greece**: Special allowances were paid to health professionals working in remote areas (WHO, 2011a; WHO 2011b).
- **Czech Republic**: increased salaries for nurses were introduced in combination with measures such as continuous professional development, subsidised education, shortened education programmes and places for practical training; support to return after maternity leave, child-care and improved monitoring of the nursing workforce. The nursing shortage was reduced from 1090 nurses in 2008 to 570 in 2009 (Sermeus, Bruyneel 2010).
- **Czech Republic, Finland, United Kingdom**: Buchan and Black (2011) report that increases in salary scales of nurses, respectively in 2009, 2008 and 2006, translated in increased applications to nursing studies and to public sector jobs; as these were one-off measures, it is not known if this effect lasted.
- **Denmark**: Older GPs can receive a bonus for postponing their retirement age In Southern Denmark. GPs aged from 63 can receive between DKK 320,000

(€43,000) and DKK 1,080,000 (€145,000), depending on age, on the size of the list of patients and on the duration of the commitment. In Northern Jutland, GPs receive DKK 55,000 (€7,400) per quarter between the age of 62 and 65 (Ono et al., 2014).

- **Denmark**: Young doctors recruited for general practice earned a higher income compared to their hospital colleagues. This is in addition to an improved social and professional environment (group practices), and to the recognition of general practice as a specialty (Olejaz et al., 2012).
- **Estonia, Hungary, Iceland, Lithuania, Malta and Norway**: Increases in salary were used as an incentive. Three interventions included additional measures: in **Estonia**, priority was given to salary increases in order to retain health professionals (Lai et al, 2013). In **Hungary**, the increase in salary was implemented jointly with a loyalty bonus (Gaál, 2004). In **Malta, Lithuania** and **Norway**, the increase in salaries was implemented in combination with financial incentives, upgrading courses, improved status, flexible working hours and access to a child-care center (Rechel, Dubois et al, 2006). In **Iceland** a new contract struck between Landspítali National University and Iceland's nurses' union includes salary increases of between 5 and 9.6 per cent (International Council of Nurses, 2013; Friðfinnsdóttir & Jónsson, 2010).
- **France**: The Ministry of Health has introduced multi-professional infrastructures called "*Maisons de santé multidisciplinaires*" in 2007, There were 174 in 2012, 370 in 2013, and it was planned to have 600 in 2014; 80% are in rural areas. Working conditions, such as number of hours worked, are better than for single practitioners, an incentive that attracts physicians, nurses and other health professionals (Ono et al., 2014).
- **France**: Some regions - such as Burgundy, reimburse a percentage of accommodation and travel expenses of medical students as an incentive to work in understaffed areas. During their postgraduate studies, students can receive up to €24,000, on condition that they undertake to practice for a period of up to 6 years in a region with a deficit of healthcare professionals. Since 2005, Burgundy's Regional Council has been inviting nurses, physiotherapists and midwives to sign a bonding contract ("contrat réciprosanté"), at the time of their studies, which comes with an allowance and requires a commitment to work for between one and three years in the region when they finish their training (Chevreul et al 2010).
- **Germany**: Community health centers were established in 2004 to improve working conditions of physicians by reducing their workload, improving interaction with other specialties and giving access to higher earnings through

resource-sharing. In 2011, there were 1 750 community health centers; 14.6% were located in rural areas and these are considered to have potential for further expansion in rural areas because the advantages of establishing or joining such a center are more pronounced there than in urban areas, in terms of less heavy workload and better income (Ono et al., 2014).

- **Germany:** 11 out of 16 federal states (*Länder*) offer financial incentives to GPs opening their practice for the first time in designated shortage areas. GPs can receive a one-time payment ranging from €15,000 to €60 000 depending on the state, the degree of shortage, the size of the municipality and the type of services the physician provides. Sources of financing differ across *Länder.* Costs are either shared between the state government, the association of statutory health insurance physicians and insurance companies or borne entirely by one of these stakeholders. In some states, such as Mecklenburg- Western Pomerania, North Rhine-Westphalia and Lower Saxony, the one-time payment of practice opening comes with a return-of-service obligation of five to ten years. In the state of Thuringia, GPs aged 65 and above can apply to receive €1,500 per quarter in addition to their normal revenue for continuing to work in underserved or at risk of becoming underserved rural areas (Ono et al., 2014).
- **Greece**: As part of the reform of 2000-2002, the hiring of medical, nursing and administrative personnel to fill vacancies in public hospitals was accompanied by the payment of special incentives for specialties that face shortages, including general practice, public health, occupational medicine and emergency medicine (Economou, 2010).
- **Poland:** There are examples of local authorities awarding scholarships to students to attract them back when they graduate. Some hospitals give bonuses or benefits such as free accommodation or access to recreational facilities to doctors in understaffed specialties to retain them. In order to reduce attrition, some hospitals are changing the employment model to a contract-based one (Kołodziejska et al., 2012).
- **Spain**: Doctors can earn a supplementary allowance if they agree to work exclusively in the public sector. In some regions, additional allowances are allocated for primary care specialists working in rural areas (Rechel, Dubois et al, 2006).
- **United Kingdom:** Payment increases for hospital consultants were implemented in combination with working-time flexibility, more career development opportunities and access to continuing education and training programmes (OECD, 2008).

3.3.2.3. Professional and personal support

In the category "professional and personal support", 34 interventions were described to address shortages and mal-distribution of staff, by improving responsiveness to staffing needs and addressing the causes of dissatisfaction and stress.

- **Austria, Germany, Norway, Romania and Slovenia:** Addressing a sense of isolation or deprivation when working in remote areas is done through measures such as: the use of telemedicine technology – Norway (Rechel et al., 2006), Austria (WHO, 2011), Germany (OECD, 2010), distance learning – Romania (World Health Organization Regional Office for Europe, 2011b) and the provision of housing and other personal support - **Romania** and **Slovenia** (World Health Organization Regional Office for Europe, 2011b).
- **Belgium, Czech Republic, France, Ireland, Malta and United Kingdom:** measures addressing the difficulty of combining professional and personal life (care of children or of ageing family members) included:
  - Back-to-nursing courses and mentoring – Ireland (Buchan, 2009; WHO, 2010) and UK (OECD, 2008; Rechel et al., 2006), sometimes free of charge in exchange of commitment to continue working for the employer;
  - Flexible working hours and access to a child care centre - Malta (Rechel et al., 2006);
  - Childcare support or on-site nursery facilities - Czech Republic (Buchan & Black, 2011), and UK (Bryar et al., 2012);
  - Flexible working hours, part-time contracts or working overtime – UK (OECD, 2008) and attractive maternity leave and annual leave arrangements – Ireland (Buchan, 2009);
  - Exemption from night and week-end shifts for older workers – France (OECD, 2008);
  - The option of working part-time while preserving salary after reaching a certain age – Belgium (OECD, 2008; Gerkens & Merkur, 2010) and UK. In the UK for example, a flexible-retirement initiative launched in 2000 enabled staff nearing retirement to move to part-time work while preserving pension entitlements (Simoens and Hurst, 2006; in OECD, 2008).
- **Bulgaria, Czech Republic, Denmark, Norway, Spain, Sweden and United Kingdom**: interventions aiming at motivating staff were: improved access to university study or specialization – Bulgaria (World Health Organization Regional Office for Europe (2011b), Czech Republic (Sermeus &

Bruyneel, 2010); allowing for flexibility in training opportunities so that CPD can be combined with work or other tasks – Denmark (Fujisaw & Colombo, 2009), UK (OECD, 2008) and Czech Republic (Sermeus & Bruyneel, 2010); allowing staff to dedicate time to research - Sweden (Svensson et al., 2011); increasing possibilities for and flexibility in career development opportunities – UK (OECD, 2008), Norway (Rechel et al., 2006) and Spain (Rechel et al., 2006).

- **Germany**: The German Hospital Federation is a member of the "*Network Success Factor Family*", an initiative of the Association of the German Chambers of Industry and Commerce (4000 members) and of the German Federal Government launched in 2007. The network promotes family friendly human resources policies and provides information and services about the reconciliation of work and family life. Over 280 hospitals participate and expect positive results in terms of retention of personnel, particularly women.
- **Malta and United Kingdom:** making management and organizational culture more responsive by strengthening representation of women at senior clinical and management levels – Malta (Rechel et al., 2006); zero tolerance on violence against staff – UK (Bryar et al., 2012; WHO, 2010). Also in the UK, the *Improving Working Lives (IWL) Standard* states that "every member of staff in the NHS is entitled to work in an organization that can demonstrate its commitment to more flexible working conditions that gives staff more control over their own time". The *Standard* also required NHS employers to prove that they are investing in improving diversity and tackling discrimination and harassment (Baumann et al., 2006; OECD, 2008).
- **Bulgaria, Denmark, Estonia and Romania:** Enhancing staff recognition and status through increasing recognition of general practice as a specialty and supporting research in that field – Denmark (Olejaz et al., 2012), Estonia (Jesse et al., 2004), Bulgaria (World Health Organization Regional Office for Europe, 2011b), Romania (World Health Organization Regional Office for Europe, 2011b). In Estonia, efforts have been made to raise the status of nurses by increasing their responsibilities and introducing continuing education. The new *Health Services Organization Act* gives nursing a legally well-defined status on par with primary, specialist and emergency care. In hospitals, nurses and nursing are increasingly being better recognized by doctors as well as by patients (Jesse et al., 2004).

3.3.2.4. Regulation

In the category "regulation", 11 interventions were found in the grey literature. These were implemented in 10 countries. The main objectives of introducing regulation interventions were to upgrade the role of nurses and to implement the regulation of the practice location of health professionals.

- **Belgium, Cyprus, Czech Republic, Finland, France, Ireland, Poland, Spain, United Kingdom:** these countries engaged in some review of the scope of practice of nurses to upgrade the status of the profession and thereby make it more attractive to potential recruits and mitigate the shortage of physicians by enabling nurses to take over additional tasks and augment physicians' capacity to take care of more patients. The expected impact of the European Working Time Directive is also mentioned as a driver of this movement. Delamaire and Lafortune (2010) report important inter-country variations principally in terms of the extent to which nurses' roles have been expanded, namely as regards autonomous practice and prescribing rights. While the status of nurses has been upgraded everywhere, the formal recognition of extended functions is more advanced in Finland, Ireland, Spain and the UK. In the latter case, new legislation came into effect in April 2012 that will allow over 20,000 nurses who have undertaken a specialist degree level course and hold a separate registered qualification to be able to prescribe from the same list of medicines as doctors within their specialty and competence. The changes mean that appropriately qualified nurses and pharmacists will have the same prescribing rights as doctors[12]. Buchan and Calman (2005; in Delamaire & Lafortune, 2010) also reported advances in expanding the function of nurses in Sweden.
- **France:** in 2007, the Haut Conseil pour l'Avenir de l'Assurance-maladie (High Council for the Future of Health insurance) proposed to restrict the right of physicians and nurses to settle in "over-served areas" (Chevreul et al, 2010; Drexler & Rusu, 2011). This was proposed in reaction to the observation that the introduction of financial incentives to work in a particular region had not succeeded ina better distribution of physicians across the country. An agreement was reached with nurses' representatives, which facilitated the adoption of a decree in 2009 implementing some limitations to the "right" to free choice of practice location. No evaluation of this and other measures, such as those described in the Financial incentives and Professional support sections, to improve R&R in underserved areas is available.

[12] "Legislation to give nurses same prescribing powers as doctors" NursingTimes.net 3 April 2012

- **Norway:** an important policy tool for improving the supply of physicians in rural areas has been the control of demand permits for physician positions (Rechel, Dubois et al, 2006). From 1999, all publicly financed physician positions required a permit from the Ministry of Health. As other measures to improve recruitment have been taken in parallel, it is difficult to assess the impact of this one.

3.4. Information provided by country informants

Responses from country informants[13] referred to interventions not mentioned in the databases or websites searched. In many instances, the detailed information on interventions was available only in a language other than the four used to search the literature. In those cases, we relied on summaries sent by the informant. No information was received from 2 countries despite various reminders and alternative contacts (Croatia, Poland[14]). Informants from Greece, Iceland, Latvia, Liechtenstein and Slovenia did not identify specific interventions. The informant from Slovenia indicated that the economic and political instability created an environment not favourable to putting these issues on the agenda. In Iceland and Latvia, reference was made to generic plans, which covered human resources for health, but which did not mention specific R&R interventions. In Latvia, a "*Basic Statement on Development of Human Resources for Health Care*" was adopted by the Cabinet of Ministers in 2006. The policy envisages the adoption of staffing requirements for physicians and nurses per bed and patient by specialty in hospitals. In addition, the document suggests a unified model of postgraduate education, supervision and coordination and adjusted health care personnel remuneration levels to promote recruitment of new doctors and retain existing staff (Mitenbergs et al 2012). The economic crisis which hit the country limited the country's capacity to implement these measures. In Iceland, there were initiatives to forecast future needs of physicians and nurses, but there is no mention of specific recruitment or retention interventions. In Greece, health workforce issues have only recently been brought to the agenda in the context of the negotiations of financial assistance with the International Monetary Fund, the Central European Bank and the European Commission. Specific measures have yet to be adopted. In Liechtenstein, there is only one hospital, in Vaduz and there are agreements with other hospitals in Switzerland and Austria to meet their service needs. The high

[13] A full list of country informants can be found in annex 3.
[14] On 27/10/2014 the Polish Ministry of Health confirmed by phone that they are working on the requested information.

standard of living in Liechtenstein allows for attractive wage levels, which has a positive influence on recruitment and retention of qualified professionals.
Most often, interventions were identified without giving detail on their nature or on their effects; in many instances they have been launched too recently for effects to be documented.

3.4.1. Interventions in education

Measures to increase the production of physicians and nurses have been reported in the following countries:

- **Austria**; Proposed creation of new medical school at University of Linz, as a strategy to address perceived shortages of physicians.
- **Belgium:** health sector employees have the possibility of completing nursing studies, via the diploma or the bachelor degree track, while receiving salary support[15]. Eligible candidates must meet admission requirements for higher education, work at least half time, be aged 23, have at least 3 years work experience in a health care facility, and pass a test.
- **Cyprus:** Three new medical schools in development since 2011 in (Uni. Of Nicosia 2011, University of Cyprus Medical School 2013, The European University Cyprus 2013) and new nursing programmes at four local universities (one public and three private).
- **Hungary:** Renewal of the residency training system and higher quota of residency training places as of 2010.
- **Italy**: reduction of specialist residency training positions by 10% in favour of General Practitioner training (2013-14).

Campaigns to motivate young students and other potential candidates to choose a health profession took place in:

- **Austria:** folders and lectures to inform students aged 15-16 about the nursing education and practice are distributed in secondary schools.
- **Belgium**: The *Care Ambassador* is a function created in 2010 in Flanders to attract young people to the health sector by developing and running a coordinated campaign for the promotion of working in healthcare services. The number of nursing students and others entering the sector has increased

[15] This measure is included in '*Project 600*', which is part of the 2000-2005 non-profit sector agreement reached by non-profit sector employers and unions. (more information available at: http://www.eurofound.europa.eu/eiro/studies/tn1008022s/be1008021q.htm)

significantly, which may indicate that the initiative is producing the expected results, but it is difficult to attribute the improvement in recruitment only to the introduction of the *Care Ambassador* until an evaluation has been conducted.

- **Cyprus**: campaigns in high schools took place to attract young students to nursing as nursing education was transferred to university level. Nursing became popular thanks to employment opportunities and to attractive salaries and other benefits in the public sector.
- **Denmark**: A consortium of the Ministry of Education, the Ministry of Health, Danish Regions, Danish Municipalities and professional organisations ran a recruitment campaign between 2009 and 2011 to increase the number of entrants in the fields of nursing, radiography and medical laboratory technology, in which deficits were observed. As a result, recruitment has increased significantly.
- **Germany**: a major national public awareness campaign to attract more students into nursing (*ich pflege weil... campaign*[16]) was conducted in 2009, but its effects are not known;
- **Ireland**: entry criteria to nursing studies have been broadened to attract mature candidates to specialties of psychiatric and intellectual disability nursing (35% reserved places for mature applicants).
- **Malta**: The Government signed an agreement with the Malta Union of Midwives and Nurses (MUMN) to enable the latter to conduct a yearly Nursing Profession Marketing programme to attract young people to nursing studies.
- **Sweden**: an initiative launched in 2012 ("*Regional health and care colleges"*) aimed at bringing local employers, professional organisations and educational institutions to cooperate in recruiting new students in the health care sector.

Support to specialty training as a strategy to address R&R difficulties:

- **Bulgaria**: the project "*New opportunities for physicians in Bulgaria*" funded by the Operational Program "Human Resources Development" 2007-2013, and financed by the European Social Fund aims at facilitating access to a specialty as a strategy to retain young physicians in the country.
- **Netherlands**: In 2010, the Ministry of Health, with the Dutch Association of Hospitals and the Dutch Federation of University Medical Centres, started the *Fund for Hospital Education*. Hospitals contribute a certain amount of money into this collective fund, which they receive back when they offer specialist nursing training; also the *Internship Fund*, launched in 2008, resulted in more internship

[16] http://www.ich-pflege-weil.de/

places and higher quality of internships. The instrument worked[17]: more and better internships have been offered with the funds. The goal of 20% additional internships in 2012 in comparison to 2008 has been achieved for the intermediate vocational education of 3 years. The goal of adding 10% internship places for higher professional training (BSc) has not been achieved; here the number of available and subsidised internship places remained the same, but it is assumed that without the Fund the number would have gone down. The Fund has improved the number and quality of the internship places, by improving the mentoring of students, by improving the collaboration between health facilities and health training institutes, by enhancing compliance with internship rules and regulations, and by enabling the better alignment between demand and supply. Budget cuts and new financing mechanisms led to a focus on financing and internal management within health facilities. The Fund is well-known and communication around the mechanism is clear. The administrative burden is low.

Reforms/reviews of training programs to make them more attractive and thereby improve recruitment.

- **Ireland**: *"Future Health: A Strategic Framework for Reform of the Health Service 2012-2015", a* strategic review of medical training and career structure, and the *National Flexible Training Strategy* aimed to retain graduates.The Royal College of Surgeons in Ireland has recently begun a study to evaluate the impact of these initiatives on retention[18].
- **Malta**: The Faculty of Health Sciences at the University of Malta streamlined its programmes to 3 year rather than 4 years, whilst retaining the same level of competence and assessment processes. This attracted more students. This reform was introduced in 2009 and as a result in 2012 there were two cohorts qualifying as nurses. This was a one-off situation that resulted in double the usual supply of nurses. After 2009 there was a trend of increased numbers of applicants to the nursing programmes.

Decentralisation of studies as a strategy to recruit and retain in rural or remote regions:

- **Norway**: the "*Competence Plan 2015*", a component of the "*Care Plan 2015*", the government's overall strategy to promote stable staffing in the care sector,

[17] Information retrieved from Andersson Elffers Felix' report, 2011, in Dutch: http://www.aef.nl/images/attachments/84/evaluatie_stagefonds_zorg_onderzoeksrapport.pdf?1371718486
[18] For more information: https://www.rcsi.ie/index.jsp?p=100&n=110&a=4500

provides grants for decentralised courses at the college level to ensure consistent provision of college-educated personnel in rural municipalities.

3.4.2. Financial incentives

Various types of **financial incentives** have been used to improve the R&R of doctors and nurses.

Incentives to choose a career path:

- **Belgium**: In 2008, the Health Minister announced a strategic plan for raising the attractiveness of the nursing profession, with four pillars: reduced workload and stress, social recognition and involvement in decision-making, remuneration and qualifications. Implementation took place as of July 2010. It includes the payment of a yearly bonus of €1,113.80 for qualified nurses and one of €3,341.50 for nurses holding an advanced professional title. There are also bonuses for evening and night shifts. This applies to nurses and health care assistants working in direct patient care in hospitals, nursing homes, and home nursing.
- **France**: the "Contrat d'engagement de service public" (Contract of commitment to public service) offers a monthly stipend of €1,200 to medicine and dentistry students if they commit to choose an understaffed specialty or geographical area for a time equal to that during which they received financial support, with a minimum of two years. They also have access to financial support from the Regional Health Agency, at the time of starting their practice.
- **Hungary**: from 2010, the structure of financing of residency programs was reorganised; extra payments were introduced for residents in specialties with a shortage.
- **Malta**: the Government provides a stipend to all university students, but the nursing students have a favourable rate to encourage intake. During summer breaks, nursing students work for 8 weeks, as part of their practice placement, and receive a minimum wage.
- **Netherlands**: healthcare personnel were excluded from the 2011 and 2013 salary freeze of public sector employees for 2 years in order to increase the attractiveness of working conditions in the sector (2011 and 2013 policy).

Incentives to choose/maintain a practice location:

- **Estonia**; start-up grants and other financial motivators to ensure staff outside Tartu and Tallinn, such as a "Beginner's allowance" of €15,000, have been in force since June 2012.
- **France**: an agreement between nursing unions and the Health Insurance Agency divides the country in zones according to their level of staffing. Nurses working privately cannot practice in overstaffed zones until another nurse leaves that zone; nurses accepting to work in understaffed zones have access to financial aid to buy equipment and to support their professional activities up to €3,000 per year for a maximum of 3 years, and to a reduction of their contribution to social security.
- **Italy**: Incentives to choose a practice location in remote/rural/mountain areas are negotiated by trade unions with Regional Health authorities when signing the Integrative GP contract (regional supplements to national salary schedule and tariffs).
- **Lithuania**: in 2013, the Radviliskis municipality (population 21,000) board decided to use its budget to attract full-time family physicians with a compensation of 50,000 litas (approximately €14,500) which can be spent at the recipient's discretion, paid in three instalments: within 30 calendar days from the start of work, after 24 months, and after 42 months. Physicians, whose monthly salary is around €1,000 have to commit to work at the primary healthcare center 40 hours per week for at least five years. In Lithuania, municipalities own regional hospitals and primary health care centres, and can create incentive packages to attract and to retain physicians.
- **Romania**: cash and in-kind benefits can be distributed to family doctors by health and local authorities. These incentives include an increase in wages of up to 20 percent, facilities for transportation, and a reduction in some local taxes.

Incentives to work/stay in the public sector:

- **Hungary**: Average salaries in the public sector increased by 15,5% in 2012 compared to 2011, benefiting more than 95,000 health professionals. A similar increase was implemented in 2013. In 2012, doctors and residents with lower incomes and nurses with vocational qualifications received higher increases; in 2013, professionals who had received less compensation in the previous year were prioritised, especially graduated nurses and hospital pharmacists.
- **Hungary**: Under the "*Resident scholarship programme*" (Markusovszky and Than Scholarships), resident doctors can receive a tax-free scholarship of 100,000 HUF (approx. €330) per month. They have to agree to work in the

public healthcare system for the equal time of their scholarship period (5 years in most cases), and not accept informal payments. This programme is popular; more than 1,700 residents have joined the programme since 2011.

- **Italy**: the Public NHS offers incentives to retain doctors and other health professionals; pension rights, guarantee of employment and compatibility with life choices, especially for women (60% of newly graduated doctors and 85% of graduates from other health professions) are regarded as strong non-momentary incentives to work and stay in the public sector. Local health units can grant highly specialised physicians a '*professional appointment*', which tops up their salary as an incentive to remain in the public sector.
- **Malta**: there is a *Nursing Premium* above the basic pay and allowances. In February 2013, the Government and the nurses and midwives union (MUMN) signed an agreement regarding the nursing career pathway that includes improved salary conditions and educational pathways. This also includes a Continuing professional development allowance of €700 per year.

Incentives to work/stay in a specific organisation:

- **Belgium:** in 2009 a Belgian hospital (AZ Jan Portaels in Vilvoorde, pop. 41 000) offered a company car to all nursing personnel. The hospital claimed to be the first in Belgium to do so and received a lot of media coverage. In 2011, another hospital also offered a company car, but only to nurse managers, on the grounds that their function was "a shortage occupation within a shortage occupation".
- **France**: Private hospitals offer starting bonuses to attract young nurses. Public hospitals, which cannot offer the same, use other incentives such as access to training or low rent accommodation.
- **Lithuania**: there are examples of coverage by a municipality of medical residency costs and of full or partial subsistence costs by the host hospital in exchange of commitment to work an agreed number of years in the institution. Costs are shared between the hospital and the municipality. An example is Mazeikiai (pop. 41,000) hospital which also includes accommodation for three years and requires a commitment of seven years after graduation.
- **Netherlands**: the Albert Schweitzer Hospital, which includes four establishments, offers a permanent contract to nursing students who start their training there; students are expected to build a connection with the hospital and start building their life (house, partner, friends, and contacts with colleagues) around the hospital.

Incentives to stay in the profession/country:

- **Czech Republic**: Some competencies of nurses and midwifes were moved into a higher salary category as part of the effort to stabilize the number of nurses working in the health care and social care sector and to motivate new graduates to join the national workforce.
- **Romania**: young resident doctors started to represent a priority for the Government after 2012, because of high levels of emigration. In late 2013, an Emergency Ordinance introduced a "specialty training scholarship" of about 150€ (670 RON) per month as an incentive to remain in the country.

Incentives to contribute to recruitment efforts:

- **United Kingdom**: "Trust offers staff £200 to 'recommend a friend' for a nurse job!": Peterborough and Stamford Hospitals NHS Foundation Trust has announced it will be holding six recruitment days through the year in order to attract 140 nurses. Like many other trusts, it will also be sending recruitment teams to Europe due to the growing shortage of nurses in the UK" (*Nursing Times*, 13-02-2014).

3.4.3. Professional and personal support

Professional and personal support interventions which have been reported include:

Measures to facilitate integration in the region/organisations:

- **Austria**: the "*Dual career service*" offers information about the new work environment for the potential recruit and partner to help make an informed decision[19].
- **United Kingdom-Scotland**: *Flying Start NHS®* , a web based programme, launched in 2006, aims at supporting newly qualified nurses, midwives and allied health professionals through their first year of employment, in their transition from student to practitioner, through a structured programme of online work packages, and an associated mentoring scheme[20].

[19] http://www.wwtf.at/other_activities/dual_career_service_support/index.php?lang=EN
[20] http://www.flyingstart.scot.nhs.uk/managers-support

Measures to improve the quality of the work environment:

- **Finland**: The Ministries of Social Affairs and Health and of Education and the European Social Fund developed and funded, between 2003 and 2007, several small projects that aimed to retain nurses in the regional workforce. Projects focused on developing basic and continuing nurse education, flexibility in the distribution of nursing tasks and job rotation and the attraction of young people to the nursing profession. However, these projects have been criticised, as some are temporary, do not affect nurses' everyday working life, and take nurses time out of nursing care.
- **Netherlands**: the *Action Plan Working Safely in Healthcare*, an initiative of three Ministries, aims to improve the safety of the health sector working environment and to reduce violence against health professionals. Anyone arrested for violence against staff performing a public duty will be eligible for 'fast-track justice'. This is meant to eliminate a factor which negatively influences R&R.

Measures to support/retain specific categories of health workers;

- **Belgium**: for more than 20 years, back-to-nursing programs to refresh skills and knowledge have been available.
- **Belgium**: the 2005-2010 social agreement between employers, trade unions representing workers in the federal health sector, and the federal government, includes measures of end-of-career working time reductions. Nurses working full-time and aged 45 years, 50 years or 55 years, can reduce the number of hours worked per week without any salary penalty by 2, 4, or 6 hours respectively. This amounts to 96, 192, and 288 hours annually. They can also choose to work full-time and obtain a salary bonus of 5.26%, 10.52%, 15.78% respectively. A combination of options is also possible. For nurses working part-time, these measures can be applied proportionally to their working time. Employers are entitled to an annual financial contribution to offset the cost of these measures.
- **Finland**: The Ministry of Social Affairs and Health offers a range of measures, to promote well-being at work, family life-work balance and special employment conditions for older workers in all sectors.
- **Ireland** adopted a plan of action for retaining non-consultant hospital doctors (NCHDs) including a training fund, two-year NCHD contracts, implementation of the European Working Time Directive, public holiday leaves, overtime payments, career plans, improved working conditions and access to continuing education and training.

- **Lithuania**: there is support to re-entry of physicians who suspended or cancelled their registration. They can return to the register while undergoing a professional traineeship, which varies between 1 and 12 months, depending on the period of inactivity and specialty requirements. Up to 90% of re-entry traineeship costs are covered by the Ministry of Health.
- **Malta**: the Government has adopted policies encouraging the return of nurses who had left by allowing re-entry at exit point (salary wise), without losing their years of experience. There is also the possibility to work part-time or on reduced hours and retain all benefits on a pro-rata basis.
- **Switzerland**: The Vaud Canton has developed a free-of-charge back-to-practice programme targeting nurses who had been inactive and who want to return to practice. It includes an assessment of competencies, a complementary training to update competencies and placements to facilitate reintegration of the labour market.

Family-friendly measures:

- **Sweden**: Collective agreements negotiated between SALAR, an employers' organisation, and the trade unions, contain general provisions regarding possibilities for adaptation to local conditions and for individual arrangements for additional vacation, compensation for overtime, shortened working hours etc.

"Good" human resources management practices, labour conditions, and education, professional development and career opportunities:

- **Austria**: the *2013-2018 Work Programme* of the Federal government includes the objectives to improve support to health care workers (further education, working time), to stimulate collaboration between health care professions, to remodel the education system for nurses and physiotherapists and new doctors' training.
- **Belgium:** In February 2013, the home care organisation 'Wit-Gele Kruis Vlaams-Brabant' introduced '*We Care Teams*" consisting of home care nurses who work autonomously and are responsible for their own work planning, holiday planning and so on. This new way of working was inspired by the Dutch 'Buurtzorg'-concept. Every team consists of ten home care nurses. Even though it is too soon to assess the influence of this new way of working on recruitment and retention, according to 'Wit-Gele Kruis Vlaams-Brabant' nurses' commitment to their organisation has grown and they are more satisfied with their work. There are indications that younger nurses who started as interns are more likely to remain working in the organisation. Another home care organisation 'Wit-gele

kruis Oost-Vlaanderen' has recently started implementing the Dutch Buurtzorg-model in a more copy-like way with six teams are working autonomously. It is expected that by March 2015, all teams of home care organisation 'Wit-gele kruis Oost-Vlaanderen' will work autonomously.

- **Czech Republic**: government measures to improve retention of nurses include: salary increase, lower fee for registration and re-registration, support to e-learning, financial support to specialisation education, and to generally improve the social recognition of nurses the society and their working conditions.
- **Denmark:** in 2009, *Danish Regions* initiated a concerted action ("A good workforce in a strong healthcare system") to ensure a sufficient supply of health personnel and the best use of the existing workforce. Specific strategies include: increase in number of students across healthcare professions, creation of new training programs, recruitment of foreign health personnel, retention of existing personnel, greater job satisfaction, flexible division of labour, innovative management**.**
- **Finland**: support is offered to directors of nursing on how to make use of evidence-based knowledge and good practices in order to develop nurses' expertise and thereby promote retention.
- **Finland:** measures to ensure the sufficiency of personnel include: involvement of the personnel in developing and improving management processes; reconciliation of work and personal life; promotion of well-being at work; and tools for human resource and knowledge management.
- **Hungary**: the *Semmelweis Plan* is a reform plan for the Hungarian healthcare system, which includes a chapter dedicated to career development of health professionals.
- **Netherlands**: some hospitals (Vlietland Hospital, Schiedam; St. Antonius Hospital, Nieuwegein)) aimed to become a "magnet hospital"[21], i.e. to meet criteria of good management set by the Magnet Recognition Program of the American Nurses Credentialing Center, to become more attractive to nursing staff.
- **Netherlands**: The home care organisation *Buurtzorg* [Community Care], established in 2006, was not originally introduced as a R&R intervention, but it has proven very effective in both areas, as shown by the growth in the number of staff employed (from 100 in 2007 to 7,600 in 2013) and low staff turnover. A typical Buurtzorg team consists of a maximum of 12 nurses and community

[21] At the time of writing, the Dutch Association of Nurses and Nursery Personnel no longer promotes the Magnet hospital concept, for two reasons; the Netherlands already has many accreditation systems and because for interested hospitals, accreditation was not the final goal, but the improvement of nursing care. The "Excellent Care" programme is broader and focuses not only on hospitals and nursing care, but also on carers and nursing homes, home care and mental health care.

carers. Teams work autonomously and manage their own planning of clients, work schedules, holidays, and the general administration. All teams have one coordinating community nurse and are supported for ICT matters by the central office. Buurtzorg won the *Effectory award* for 'Best Employer' (with more than 1000 employees) in 2011 and 2012 – and was runner-up in 2013[22]. This title is awarded on the basis of independent employee surveys of at least 300 employees in each organisation. This is an award for the most innovative contribution to healthcare.

- **Netherlands**: the Dutch association of hospitals has agreed (2013 policy) to upgrade the training and remuneration levels of nurses level 4 and 5. **Spain: the** *Strategic Plan for primary care services* of the Ministry of Health (2007) includes various proposals: recognition of merit in career progression; economic incentives linked to team *perfor*mance; non-economic incentives to stimulate motivation: access to continuing education, improved working conditions, more autonomy in decision-making, and access to technology.

3.4.4. Regulation interventions

Regulation interventions mentioned by country informants include the following:

Quotas (numerous clausus) to regulate the number of professionals entering a profession or working in a certain zone:

- **France** has adopted regional quotas for nurses and other paramedical occupations to prevent geographical imbalances and changes in the *numerus clausus* of entrants in the various health professions[23] were other identified measures.

Review of scope of practice of nursing so as to make it more attractive[24]:

- **Ireland**: the Nurses and Midwives Act 2011 enabled nurse prescribing.
- **Italy**: the 'College' of nurses (Federazione Nazionale Collegi Infirmieri) campaings to be recognised as a 'Professional Order' and to include 'advanced clinical competences' in nursing curricula, which is strongly opposed by doctors and by a nurses' union.

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[22] In the category 'Best Employer in Healthcare' Buurtzorg has ended on the first place for three years in a row; in 2011, 2012 and 2013. In 2012, the magazine 'Management Team' elected Jos de Blok, one of the founders of Buurtzorg Nederland, as 'Gamechanger' of 2012.
[23] Also in a number of other countries like Portugal or the Netherlands (where its elimination is proposed, freeing universities to decide how many places they will offer).
[24] Note on the variety of similar initiatives, here we only report on those mentioned by informants

- **United Kingdom:** various policy measures in to expand the functions of nurses since 2000.

Changes to employment conditions:

- **Malta**: the Government made it possible for nurses willing to work beyond retirement age to do so. This helped cut down nursing losses by around 7%.
- **Denmark:** a "policy on full-time" has been agreed on by the regions' organisation, *Danish Regions*, whereby only full-time positions will be offered at Danish hospitals from 1 January 2014. This is expected to attract health care professionals overall, and help meet future staffing needs in hospitals.

International recruitment through contracting, active recruitment active recruitment or other measures:

- **Belgium**: hospitals have used recruitment agencies to attract nurses from Asia and Eastern and Southern Europe.
- **Bulgaria**: In July 2011 the government adopted a *National Migration Strategy*, in particular to stimulate qualified Bulgarians to return. Medical specialists are one of the main targeted groups.
- **Italy**: whereas at beginning of the century, some Regions were actively recruiting abroad and offering economic incentives, in the last ten years foreign recruitment of health professionals has stopped as national production of health workers reached the level of self-sufficiency.
- **Luxembourg**: since it does not have a faculty of medicine, Luxembourg recruits mainly abroad without difficulty as working conditions are most attractive and retention is not a problem.
- **Norway**: with *Towards Global Solidarity* (2007) Norway has committed to the WHO Global Code of Practice on International recruitment of health personnel, but it still attracts foreigners and "…there have been some recruitment efforts for specific types of personnel (surgical nurses and intensive care nurses".
- **Portuga**l: Since 2008, the Ministry of Health contracted physicians from Colombia (82 physicians in 2011), Costa Rica (14 physicians in 2008, 9 in 2011), Cuba (44 physicians in 2009; contracts were renewed in 2012 -not necessarily with the same physicians, and Uruguay (15 physicians in 2008) through bilateral agreements usually for periods of 3 years.
- **United Kingdom**: an increasing number of hospital trusts across England have been actively recruiting nurses from overseas – especially from the Iberian Peninsula. Of 105 acute trusts that responded to a Freedom of Information

request by the *Nursing Times* in October 2013, 40 had actively recruited nurses from overseas in the last 12 months.

Most informants' contributions refer to interventions at a macro level, though some present actions at the level of municipalities and of hospital level. The information collected is of the kind that could not be traced in the published literature, in many instances because the initiatives which it presents have only recently been launched. Some of the input is of anecdotal nature. The effects of the interventions have yet to be observed and their effectiveness to be measured. Yet, this information shows that there are variations from country to country, some being more active than others at addressing R&R issues. In a number of countries, a set of interventions are in place, whereas in a few others none has been reported. The information collected does not reflect the full reality of R&R in the target countries because of our reliance on one or two informants only, of the obstacle of language, and of not having conducted field visits.

4. Analysis

The aim of this review is to identify "good practices" from which lessons could be learned and disseminated. Building on the presentation of findings in chapter 3, this section analyses common aspects and lessons of R&R interventions. After briefly discussing the challenges of measuring the 'effectiveness' of interventions, we present drivers for action and facilitators and barriers that influence the effects of interventions. This is followed by a synopsis of the lessons that emerge, conclusions and answers to the research questions formulated in the introduction of this review.

4.1. The 'effectiveness' of interventions

The review identifies a number of concrete interventions, but caution is needed in concluding on their effectiveness, or on their generalizability and transferability. We defined effective recruitment as the demonstrated capacity to attract individuals with the required competencies to choose a certain health occupation, speciality, or type and place of work, in order to meet specific strategic objectives such as improving availability and accessibility to health services. Effective retention refers to the capacity to maintain health workers in the health care system, limiting unjustified ("voluntary") losses to other organisations, sectors or geographical areas, within and out of the country.

When reviewing the literature, it appeared that the general lack of documents reporting the evaluation of interventions would make it impossible to draw evidence-based conclusions on specific R&R measures. The notion of effectiveness is multidimensional. In its more generic sense, it refers to the relationship between an action and its effects. An intervention is deemed effective when it can be demonstrated that it has produced the expected or predicted results. The results of a R&R intervention may not be immediate and the longer the time lag between its implementation and observable changes, the more difficult it becomes to attribute the results to the intervention as many confounding factors could have contributed to producing them. It may be easier to conclude to the non-effectiveness of an intervention, but even when results are negative it does not mean that the intervention was inherently misconceived. The success of health workforce interventions is very context-dependent and failure may be caused by poor implementation or other factors not under the control of policy-makers. Also, the notion of cost-effectiveness is frequently referred to in policy analysis as helping

make more rational choices. An intervention is more or less cost-effective in comparison to another one, a conclusion which can only be reached after applying a research strategy which none of the documents which we have reviewed has reported.

The primary studies which we reviewed, in which one or more interventions were directly observed do not include reports of systematic evaluations and none which is able to conclude to a relation of causality between an intervention and some observed effects. As mentioned in the methodology section, there might be a language bias here as the literature search was limited to documents in English, French, Spanish and Portuguese. Informants contributed articles and reports in their national language, generally with a short summary of contents, but we were not informed of any which included a formal evaluation. . As regards the information extracted from reviews and from grey literature which provide less robust information than primary studies, extra care should be taken as we interpret their findings.

Bearing in mind the lack of scientifically evaluated interventions, and the difficulties in establishing a causal relation between an intervention and its effects, indicators such as the numbers of new students in educational programmes for nurses, or the number of doctors staying in underserved areas following a placement during their studies can be considered as indicating a "probable" positive effect. Even though the effectiveness of a specific intervention is not scientifically established, it does not imply that it should not be used. Or recommended. If its capacity to produce the intended results is "credible", based on changes observed after its implementation and on expert opinions found in the global literature, policy-makers and managers should consider using it or at least learning from it.

4.2. Drivers of interventions

Most interventions are triggered by similar motivations and objectives such as observed or forecasted shortages of a category of personnel, high attrition rates due to career reorientation, early retirement, or emigration, and difficulties in recruiting and retaining personnel in certain professions, specialties, fields of practice, or geographical locations. Higher-income countries (Austria, Germany, Norway, Switzerland, The UK) are those which more frequently report shortages and express more willingness to recruit additional health professionals. In lower-

income countries or in countries where the economic crisis hit harder, recruitment has usually been frozen for financial reasons; in some countries, unemployment of health professionals is observed (Greece, Ireland, Italy, Portugal, and Spain). All countries are facing similar pressures from changing demographics and epidemiological profile with ageing populations and an increasing burden of non-communicable chronic diseases, among which mental illness represents a growing proportion. The health workforce is also ageing; in a labour market in which entrants are less numerous than baby-boomers who go into retirement and have more career options to choose from, recruitment in the health professions is a very significant challenge.

According to informants, their country (Nordic countries, France) has reached a relative equilibrium between supply of and need for health professionals, but they forecast future shortages for the reasons already mentioned. Like almost all other countries, they sneed to address the issues of geographical imbalances in the distribution of health professionals or of deficits in some specialties and fields such asgeneral practice, mental health, geriatric care, for example.

Emigration used to be an issue that concerned mainly Central and Eastern European countries (e.g. Bulgaria, Hungary, Poland, Romania); it is now also affecting countries like Greece, Ireland, Portugal, and Spain.

In the United Kingdom, media attention given to major quality gaps in some hospitals in the last few years has served to throw light on health workforce related needs, such as nursing staff requirements and unmet recruitment needs[25]. This is not the kind of policy driver which is most desirable, but it has provided a policy window for action. Evidence from the EU-funded Registered Nurse Forecasting (RN4CAST) study[26] has shown that improving work environments can improve both nurse retention and quality of care, and that staffing shortages are detrimental to patient safety and quality of services.

4.3. Policy responses

Responses to R&R problems show a great variation across EU and EFTA countries, even though they tend to be interventions falling within the following categories: changes in the education of health professionals, the provision of financial

[25] The findings of the public inquiry into Mid Staffordshire Foundation Trust (*Francis Report*, February 2013, http://www.midstaffspublicinquiry.com/report) resulted in the National Institute for Health and Care Excellence (NICE) devising guidelines on *Safe staffing for nursing in adult inpatient wards in acute hospitals* (http://www.nice.org.uk/Guidance/sg1)

[26] http://www.rn4cast.eu/

incentives, professional and personal support measures, and regulatory interventions.

Responses differ in *intensity*: among high income countries, France, the Nordic countries and the UK have a history of continuing efforts to address R&R issues going back to the 1990s. These countries have in common a difficulty in recruiting enough nurses and physicians to meet their future needs. Among lower-income countries, the Czech Republic, Hungary and Lithuania have been the more active in intervening to improve R&R, because they were losing professionals to emigration.

The majority of interventions presented in primary studies related to the education of health professionals. These include clinical rotations, placements in rural regions, coaching or mentoring of students, adaptation of curricula for rural health work, decentralization of education institutions or programs, recruitment of students from rural areas, and attraction of students or young graduates to certain fields of practice. The offer of financial incentives and the provision of professional and personal support were used for the same purpose and for improving retention, scholarships or allowances to students are used as incentives to choose a profession or to commit to establishing in a rural or deprived area after graduation. Measures addressing isolation, such as telemedicine, distance learning and virtual networks have been used to improve retention in rural and remote areas. Family-friendly measures, such as the provision of childcare support, flexible working hours, part-time contracts, attractive maternity and annual leave arrangements have been put in place to make workplaces more attractive. Offering professional and career development opportunities has also been used to motivate staff and thereby improve R&R. Finally, some countries with recruitment problems have targeted older and retired professionals with measures such as exemption from night and week-end shifts, part-time work, financial incentives to prevent early retirement or to encourage them to continue working even after retiring.

Regulatory measures have been less frequent, which is to be expected because they are more demanding politically and economically. Examples are changes in the status of nurses or of family physicians, in the division of labour through the revision of scopes of practice, in the management structure, in employment contracts, or in remuneration mechanisms.

Informants from some countries (Greece, Italy, Latvia, Portugal, and Slovenia) report few if any policy interventions. In other countries, there have been policy interventions of various types and importance. The UK, particularly England and Scotland, has developed many strategies to strengthen the nursing and medical workforce. These include reforms of education curricula, upgrading the status of nurses, increasing the intake of students, trying to manage international

recruitment. Lithuania and Norway are other examples of continuing efforts to address health workforce issues, such as shortages or emigration. Explicit human resources for health policy are rare. In the Netherlands, the Minister of Health issues an annual "health labour market letter" to Parliament in which the health workforce policy is presented. Austria and Finland have a generic workforce development policy which covers all sectors, including health. In other countries, health workforce issues are addressed in a National Health Plan or equivalent (Ireland, France, Hungary, Lithuania, Norway, and the United Kingdom). A major challenge is to design a comprehensive R&R strategy addressing the whole health workforce, rather than occupational groups separately.

4.4.

Some lessons learned from literature review

The literature review reported a number of observations which, taken together, bring some potentially useful lessons for policy-makers, planners, managers, educators and leaders of professionals associations. We propose 10 lessons, formulated in generic terms here, but which can easily be adapted to the specificities of a country's needs. All are important and complementary. The following have the potential to contribute to the success of R&R interventions:

Lesson 1: Different factors influence recruitment and retention and policies and interventions need to be designed differently to take this into account

A review of recruitment and retention experiences in OECD countries concluded that interventions to improve recruitment should be different from those targeting retention. The reason is that the decisions to choose to practice in a certain location, say a rural area and those to stay there are taken on the basis of different criteria. One takes place outside the practice setting when the future practitioner is still studying, whereas the other is influenced by factors related to the experience of living and working in such a rural area (Forcier et al 2004).

Another study suggests that interventions should be adapted to the different stages of engagement with the "rural pipeline". For example, at stage one,: "making career choices", exposing potential students to the possibilities of working in rural areas can be useful and differs from offering incentives one qualified or drawing in recruits from the locality and investing in the workplace and training and

development opportunities to support retention.(Mbemba et al (2013). Viscomi et al (2013) argue along the same lines when they propose that interventions should be designed around the five Life stages of a family practitioner in rural practice which are: "life before medical school"; "experiences during medical school"; "experiences during postgraduate training"; "recruitment and retention after completion of fellowship qualifications" and "maintenance action plan: remaining satisfied". By analogy, the same argument can be applied to decisions to work in any organisation and to stay there.

Lesson 2: Policy statements which propose objectives and strategies to address health workers recruitment and retention challenges play a critical role in guiding action and in mobilizing stakeholders.

Examples are: the Dutch Minister of Health yearly *Labour Market Letter* that formulates the government's health workforce development policy directions and the England *NHS Plan*, which included a commitment to introduce more flexible pathways into nursing education to encourage the recruitment of students without traditional qualifications and from under-represented populations.

The literature shows that most R&R interventions originated from the government or from a public agency. These were often triggered by a mix of reports from researchers, professional or provider organisations, and education institutions alerting their audience to deficits in the current or future availability of health workers, or to unmet needs in certain fields of activity or geographical regions.

Lesson 3: Creating a formal support structure (department, working group, Observatory) facilitates the design and implementation of R&R interventions

Such organisations can provide technical support in research, policy analysis and design, planning, monitoring and evaluation and mobilisation of stakeholders. This is critical because of the enduring nature of the process. It also facilitates coordination between the various actors involved in an intervention. An example is the Centre for Workforce Intelligence (http://www.cfwi.org.uk/) and *Health Education England* (http://hee.nhs.uk/) in the UK,

Strong technical capacity helps avoid addressing issues in an ad-hoc manner and focusing on effects rather than on the causes of problems. An organization mandated to monitor the health workforce situation and dynamics; to propose and

latter evaluate corrective interventions can help to produce relevant data and intelligence in support of policy-making.

Lesson 4: Mobilizing stakeholders is a necessary condition of success, but it is not sufficient

Engaging professional councils, unions and associations, employers and local authorities in the design and implementation of interventions builds trust and ownership and increases the probability of success. Effective communication is important in this context. Top-down interventions tend to generate less collaboration and even resistance.

Conversely, engaging stakeholders is conducive to consensus building, providing a solid foundation for successful interventions. Examples include the process of negotiation between unions, employers and government in Belgium which has led to effective R&R interventions; in the UK, consultation with professional councils is routinely conducted to discuss R&R problems and possible interventions.

Lesson 5: Building the case for investing in recruitment and retention is needed.

Mitigating R&R problems is not necessarily a free good: It may require salary increases and financial incentives, more training opportunities, information systems, research and development infrastructures and equipment. Also, improved access to doctors and nurses can increase demand for services and health expenditures. The case needs to be made to demonstrate that this is an investment which pays dividends in terms of reduced costs of turn-over, including loss of professionals to other sectors or countries. Better retention means better access, which in turn means better health outcomes and savings on avoidable service utilization. Not doing anything may also have important costs in terms of unmet service needs and poorer health outcomes.

Norway has dedicated substantial financial resources to infrastructures to train students and interns in rural areas, on telecommunication connections to make networking possible and on additional trainers and supervisors. As a result, isolated populations in the far north have gained access to good quality services.

Lesson 6: Health professionals respond to incentives; but financial incentives alone are not enough to improve R&R. Policy responses need to be multifaceted

There is ample evidence to suggest that financial incentives, however attractive, are not sufficient in themselves to convince doctors or nurses to settle and stay in underserved and remote areas. Policy-makers and organisation leaders need to consider combinations of interventions rather than isolated ones. This is because multiple factors influence the decision by a professional to choose a certain specialty or practice location. These factors may vary across settings and time periods, and interact differently according to the context. Consequently, a combination of interventions needs to be implemented and monitored to assess effectiveness and identify adjustments as needed. Single interventions have limited effects over time. Bärnighausen, and Bloom (2009) and Misfeldt et al (2014) reviewed the literature on the topic and came to similar conclusions: higher wages appear to have a positive influence on job satisfaction initially. However, there is evidence that the effectiveness of financial incentives on retention declines after five years, compared to other factors such as a positive work environment. A recent OECD paper recommends that policy-makers consider complementary strategies to attract and retain doctors in underserved areas: adapted selection and education of students; incentive system and regulatory measures to influence physicians' location choices and service re-design or configuration solutions"(Ono, Schoenstein, Buchan 2014).

Lesson 7: Inter-sectoral collaboration at government level is imperative

Some R&R measures fall within the remit of the health sector but others require collaboration from Ministries such as Education (curricular reforms), Public Administration (recruitment, remuneration, career paths) and Finance. There may be legal barriers to certain policy options, like changing laws regulating scopes of practice. Factors which relate to the context, such as limited access to secondary and tertiary education or to social activities in rural regions are not under the control of the health sector, making inter-sectoral interventions necessary.

Lesson 8: Different social contexts require different policies and interventions.

Different underserved regions have different characteristics that affect recruitment and retention. Some are remote, others isolated or simply poor areas; some have specific cultural or ethnic characteristics. Their populations may have different social, economic, demographic and epidemiological profiles. Decentralising education and training programmes and recruiting from local communities helps adapt health professionals to the needs of the population they are expected to serve. Incentives, such as access to housing, may have more impact in certain

regions. Financial incentives may need to be calibrated according to the features of the place, the motivations and aspirations of practitioners or the nature of the work.

Lesson 9: Different cadres, subgroups and areas of work require different interventions.

The needs of professionals vary from profession to profession, from one stage of their career to another. Men and women have different needs and may react differently to the same or different incentives. Professionals who have been out of practice, who have emigrated or who are getting older have specific needs and expectations. The literature is abundant on what motivates health professionals: attractive compensation package; access to continuing professional development and to a career structure; a secure and motivating work environment; reasonable workload; work-life balance and, in more isolated regions, support for family needs (accommodation, education of children, work of spouse) (WHO 2010). Depending on the characteristics of the professionals these factors are likely to have differential weighting that designers of interventions need to take into account. The corollary of this is that interventions need to be co-designed with the target groups concerned as designers and decision makers cannot possibly be expected to know the mind and motivation of the different groups, which is why multi-stakeholder input is crucial in tailoring solutions.

Lesson 10: Learning from others is useful.

The review of literature on Australia, Brazil and South Africa which complements this one supports the lessons from the literature on EU/EFTA countries. Australia has vast rural areas and an economic status superior to most EU Member States. Brazil and South Africa are two emerging countries, also with vast rural areas, and a level of economic development comparable to Bulgaria and Romania in the case of South Africa and to Lithuania and Hungary in the case of Brazil. Their experiences confirm the need for multipronged and continuous action in tackling recruitment and retention problems. These tend to be recurrent and they cannot be taken off the policy agenda. In the EU, the case of the UK shows that addressing these issues is a long-term process. Poorer EU countries can look at the experience of Brazil and South Africa to pick up ideas and lessons from the strengths and weaknesses of their health workforce policies, but, in the end, each country has to develop policies adapted to its particular set of circumstances.

These lessons suppose that technical capacity is available at policy level to design and implement strategies and interventions in as effective as possible manner. This includes capacities to conduct research and policy-analysis, to communicate with stakeholders, to identify potential obstacles, legal, financial and others, to introducing change. At organisational level, capacities are also required, in provider organisations and in education institutions. The improvement of the working environment, which has the potential to improve R&R, requires good managerial competencies and leadership. In education, the success of mentoring and of preceptorship, two strategies potentially conducive to positive effects on R&R, depends on the competencies and motivation of mentors and preceptors. Generally speakink, the lack of capacity might result in addressing issues in an ad-hoc manner, rather than trying to get to the cause of problems.

5. Conclusion: Answers to the study's research questions, based on the review

The questions listed in Box 1 are highly relevant, but a literature review is not sufficient to provide complete answers.

In response to the question "*What are the roles and responsibilities of the various policy actors and stakeholders in the design and development of interventions to recruit and retain health professionals? How do they cooperate to shape strategies?*" the literature shows that many interventions originated from (usually central) governments. Often these were triggered by academic or policy reports or pressure from professional organizations or other interest groups, alerting to deficits in the current or future availability of a category of health workers, or to unmet needs in certain fields of activity or regions. In the EU, attention to these issues has become stronger after the publication of a Green Paper on the European Workforce for Health in 2008[27] and of an Action Plan for the EU the Health workforce[28]. More recently, an EU Joint Action on health workforce planning and forecasting[29] has been launched. Education institutions, provider organizations (single hospitals or networks), and professional organizations have been active in advocating for government action and in implementing interventions to meet their specific needs. In Belgium, negotiations between unions, employers and government have led to interventions to improve R&R. In the UK, professional councils were associated with the preparation of reports which led to some interventions.

To the sub-question "*How is the role of recruitment agencies governed*?" the literature does not include any study on the activities of agencies recruiting at national level or on the utilization of agencies by employers. As regards international recruitment, the *WHO Global Code of Practice on the International Recruitment of Health Personnel* adopted by the World Health Assembly in 2010[30] contains recommendations which implicitly call for the regulation of recruiting agencies. A review of actions by countries in implementing the Code, including in regulating recruitment agencies, reported that only 5 EU/EEA-EFTA countries (Finland, Germany, Ireland, Norway, and Switzerland) had, as of the end of 2012, adopted measures to implement the Code and to encourage or ensure that

[27] http://europa.eu/legislation_summaries/public_health/european_health_strategy/sp0005_en.htm
[28] http://ec.europa.eu/health/workforce/docs/staff_working_doc_healthcare_workforce_en.pdf
[29] http://www.euhwforce.eu/
[30] http://www.who.int/hrh/migration/code/full_text/en/

agencies abide by it (Dussault, Perfilieva, Pethick 2012)[31]. These measures include the translation of the *Code* into the national language, and its dissemination to relevant stakeholders including recruitment agencies and employers. A few countries are collecting data on recruitment agencies and are considering regulating their activity. In the UK, NHS Employers provides a list of "preferred" recruitment agencies that have agreed to comply with the principles fo ethical recruitment. Agencies are private firms which do not report the detail of who are their clients, how many recruitments they make, of which category of personnel, from where or what are their fees. Agencies respond to two types of demands: the supply of temporary professionals for specific periods of time and the recruitment of permanent staff from abroad. In the former case, the "recruits" tend to be domestic professionals who prefer to be "free agents" or who cannot find stable employment. By definition, recruitment agencies are intermediaries working for a fee, not organizations with a mandate to ensure equitable access to health professionals. We could not identify repertories of recruitment agencies and information about them is only anecdotal.

As regards the second question "*What is the interaction and coherence of various policy measures in health, education, employment and labour market to recruit and retain health professionals? Are there legal barriers to certain types of policy measures to recruit and retain health workers?*", the literature does not provide direct answers. Interventions that have been documented are more often isolated than part of a comprehensive strategy involving different sectors such as education, health and employment. As regards legal barriers to certain policy options or measures, no example has been reported, though we can expect laws regulating scopes of practice can be an obstacle to interventions such as expanding the functions of nurses to make the profession more attractive and thereby improve R&R. Barriers tend rather to be economic, particularly since the beginning of the crisis in 2008, and political, in the form of resistance or opposition of some stakeholders to specific interventions.

The third question, "*How strategies are developed within healthcare organisations and how do national and regional policies frame those strategies?*" is also difficult to answer on the basis of the available literature or of the information provided by

[31] Dussault, G., Perfilieva G., & Pethick J., (2012). Implementing the WHO Global Code of Practice on International Recruitment of Health Personnel in the European Region, World Health Organization, Copenhagen, http://www.euro.who.int/__data/assets/pdf_file/0020/173054/Policy-Brief_HRH_draft-for-RC62-discussion.pdf

country informants. A response based on first-hand information would require a specific study of provider organizations' practices.

Explicit measures of effectiveness have not been found in the reviewed documentation in response to the fourth question: "*Is the "effectiveness" of interventions to retain health professionals defined, monitored and measured? If yes, what methods and indicators are used, for example, to monitor staff turnover and to measure the benefits of staff retention in terms of reduced costs, improved organisational performance and quality of care?*". Studies which concluded to positive results of an intervention did it by comparing the situation before and after the intervention. For example, when an education institution reports having an increase of student applications after a campaign to develop familiarity, say with nursing, the campaign is considered as having been effective. Another example is when there is an increase of students who choose a specialty or a rural practice location after the introduction of scholarships or financial incentives. To determine whether success can be attributed to the intervention, a formal evaluation is needed. We identified only one study (Hodgkinson, B. et al. 2011) which mentioned having studied an intervention, the introduction of teamwork in a nursing department, using a control group. In fact, this type of evaluation design is more easily applied in a clinical or experimental setting than in policy research. An intervention can be formally considered effective when it can be demonstrated that it has produced the expected or predicted results. The results of R&R interventions are not always immediate and the longer the time lag between implementation and observable changes, the more difficult it becomes to attribute the results only to the intervention as many confounding factors could have contributed to producing them.

The final question "*What are the principles and processes which characterise successful as well as not successful initiatives? What can policy-makers and health managers learn from what works, what does not work and why?*" is addressed in the previous paragraphs of the *Discussion* section. The evidence to respond to these questions is not always robust from a scientific perspective, but it is sufficient to warrant consideration by policy-makers and managers. For example, there is a relatively strong consensus in the literature on the view that financial incentives alone have a limited influence on the choice of an occupation, a specialty or a location to practice or that bundles of measures are necessary to address the multidimensional factors that influence those decisions. These can be seen as "principles" which policy-makers and managers should consider. Then the problem

is that of the application of these principles and of the implementation of interventions which embody them.

Almost all EU/EFTA countries, irrespective of their level of economic development face problems of R&R of nurses and physicians. This is a pattern observed elsewhere in the world (Campbell et al 2013). Countries' responses differ in nature and intensity depending on political commitment and on economic, technical and organisational capacity.

The answers to these questions illustrate the lack of documented evidence, and perhaps indicate that R&R strategies and interventions are very much work in progress. However, the lack of monitoring and evaluation mechanisms is already alarming, and could hamper the sharing of good policy options and practices in the future.

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Annex 1: List of search terms and MESH terms and expressions[32]

General search terms		Additional search terms
"Retention strategy/policy/intervention" "Recruitment strategy/policy/intervention" "retain" "recruit" "attract" ("doctor(s)", "nurse(s)", "midwives" "health worker(s)" "human resources for health" "health workforce" "physician(s)" "medical personnel" "health professional") **AND** **(health worker OR health workers OR health professional OR health professionals OR human resources for health OR health workforce OR doctor OR doctors OR nurse OR nurses OR midwife OR midwives OR physician OR physicians)**	In combination with	Financial incentives Non-financial incentives Professional incentives Social incentives Monetary incentives Non-monetary incentives Housing benefits Benefits Differential payment Professional development Special allowances Salaries Motivation Professional support Personal support Training Education Continuing education Continuing professional development interventions Regulation Regulatory interventions Working environment Management strategies bonding/ obligatory service Turnover Wastage Attrition Stability Scaling-up staff engagement selection job mobility patterns stocks and flows

[32] Boolean language (And/Or) is used. The search is based on the following documents:
Dolea Carmen, Stormont Laura & Braichet Jean-Marc (2010). Evaluated strategies to increase attraction and retention of health workers in remote and rural areas. *Bulletin of the World Health Organization*; 88:379-385. doi: 10.2471/BLT.09.070607;
World Health Organization (2011). Technical meeting on health workforce retention in countries of the South-eastern Europe Health Network. http://www.euro.who.int/__data/assets/pdf_file/0018/152271/e95775.pdf
Dieleman M., Kane, S., Zwanikken P., Gerretsen B. (2011). Realist review and synthesis of retention studies for health workers in rural and remote areas. World Health Organization. http://whqlibdoc.who.int/publications/2011/9789241501262_eng.pdf
Fulton B., Scheffler R., Sparkes S. et al. (2011). Health workforce skill mix and task shifting in low income countries: a review of recent evidence. *Human Resources for Health*, 9:8 http://www.human-resources-health.com/content/9/1/8
Buchan (2010). Reviewing The Benefits of Health Workforce Stability. *Human Resources for Health*, 8:29 http://www.human-resources-health.com/content/8/1/29
Lehmann Uta, Dieleman Marjolein and Martineau Tim (2008). Staffing remote rural areas in middle- and low-income countries: A literature review of attraction and retention. *BMC Health Services Research*, 8:19 doi:10.1186/1472-6963-8-19
Royal Tropical Institute, KIT Dossier Human resources for health http://www.kit.nl/kit/Dossiers-Health-Human-resources-for-health?tab=4

		feminisation

Annex 2: Sources searched

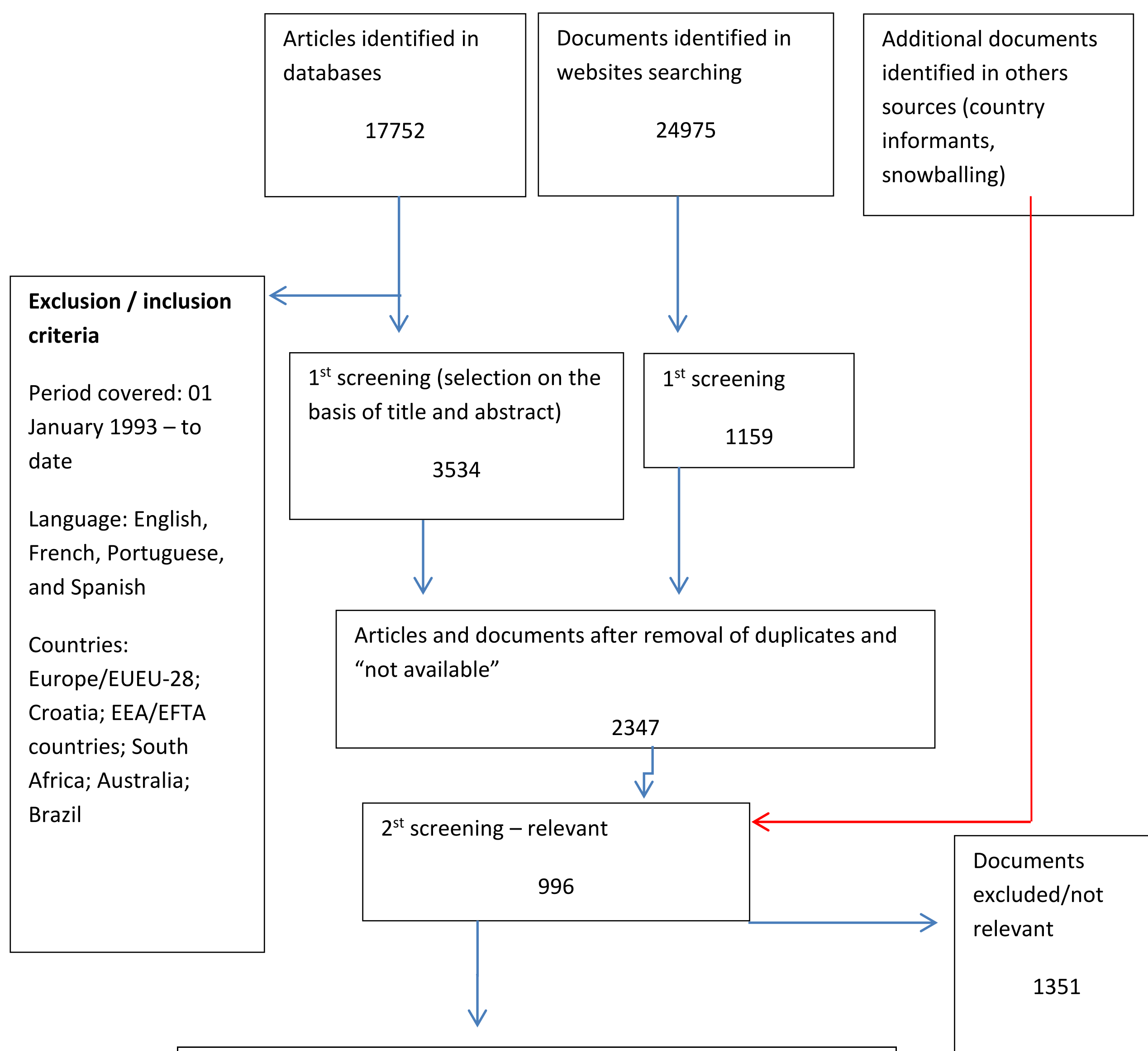
Data Bases	Websites
Pubmed BVS (Biblioteca Vitual em Saúde)	OECD IOM World Bank CapacityPlus Eldis Human Resources for Health Global Resource Center Recruit and Retain – Northern Periphery Programme European Project on skill-mix WHO (Geneva, Euro, Afro) ILO MoHProf HEALTH PROMeTHEUS RN4CAST reports; HiT series (European Observatory) International Centre for Human Resources in Nursing (ICHRN) EU Joint Global Health Workforce Alliance

Annex 3: List of country-informants

Country	Name	Position
European Union		
Austria	Guido Offermans ; Sabine Jonach, Eva Malle	University of Klagenfurt
Belgium	Walter Sermeus, Luk.Bruyneel	Centre for Health Services and Nursing Research, KU Leuven
Bulgaria	Lidia Georgieva; Boyan Zahariev	Associate Professor in Public Health and Healthcare Management, Sofia University; Open Society Institute in Sofia
Croatia	Aleksandar Džakula	Department of Social Medicine and organization of Health care, School of Public Health, Zagreb
Cyprus	Evridiki Papastavrou	School of Health Sciences, Cyprus University of Technology Department of Nursing Cyprus University of Technology Tel. 00357 25002021
Czech Republic	Veronica di Cara	Czech Nurses Association
Denmark	Viola Burau	Professor, Department of Political Science, University of Copenhagen, Denmark. /Assistant Professor, Clinical Research Lead, School of Public Health, Aarhus University and Horsens Hospital Unit/Department of Political Science and Government. Aarhus University Horsens, Denmark
Estonia	Pille Saar	Ministry of Social Affairs
Finland	Vallimies-Patomäki Marjukka	Ministerial Advisor, Ministry of Social Affairs and Health, Finland
France	Jean Marc Braichet	Chef du bureau des formations des professions de santé, Ministère des Affaires sociales et de la Santé
Germany	Ellen Kulhmann, Crista Larsen	University of Frankfurt
Greece	Elizabeth Petsetaki	Greek National School of Public Health
Hungary	Zoltan Cserháti	Head, Dept of Health sector human resources strategy, Ministry of Human Resources

Ireland	Anne-Marie Brady	Director of Centre for Practice & Health Care Innovation School of Nursing & Midwifery, Trinity College Dublin
Italy	Francesca Senese; Carlo di Pietro	Assessorato alla Sanita, Regione Emilia-Romagna, Bologna; DAS Bocconi School of management, Milano
Latvia	Daiga Begmane	Senior Expert, Strategy Planning Division, Ministry of Health
Lithuania	Liudvika Starkiene	Lithuanian University of Health Sciences
Luxembourg	Marie-Lise Lair	Consultant, Ministry of Health
Malta	Jesmont Sharples; Andrew Xuereb	Director Nursing Services Department of Health (JS) ; Chief Nursing Manager, Nursing Services Directorate & Office of the Director General HR, Parliamentary Secretariat for Health-(AX)
Netherlands	Marjolein Dieleman, Christel Jansen	Royal Tropical Institute
Poland		
Portugal	Gilles Dussault, Isabel Craveiro	Institute of Higyene and Tropical Medicine
Romania	Adriana Galan; Victor Olsavszky	School of Public Health (AG), Head of Country Office Romania , World Health Organization (VO)
Slovakia		
Slovenia	Tit Albreht	Head of the Centre for Health System Analyses, Institute of Public Health
Spain	Beatriz Gonzalez Lopez-Valcarcel	Department of Quantitative Methods for Economics & Management, University of Las Palmas
Sweden	Erik Svanfeldt	Swedish Association of. Local Authorities and Regions (SALAR)
United Kingdom	Anne Marie Rafferty	King’s College London
EEA/EFTA		
Iceland	Valgerður Gunnarsdóttir	Senior Advisor, Ministry of Welfare
Liechtenstein	Ina Lueger	Senior Advisor (Health) Ministry of Social Affairs
Norway	Jan Frich	Department of Health Management and Health Economics, Institute of Health and Society, University of Oslo
Switzerland	Delphine Sordat Fornerod	Département fédéral de l'intérieur, Office fédéral de la santé publique, Division Affaires internationales

Annex 4: Search Strategy and Results



Documents included in the study (R&R interventions):		
	EU Countries / EEA-EFTA Countries	**Non-EU Countries**
Primary Studies	23	37
Reviews	4	7
Grey Literature (General Descriptions of Interventions & Policy and Plans)	37	13
Context Documents	103	145
TOTAL	**167**	**202**

Annex 5: Primary studies according to level and type of intervention

Levels / types of intervention	Education (n=4)	Country (n)	Financial Incentives (n=4)	Country (n)	Professional and Personal Support (n=3)	Country (n)	Regulation (n=2)	Country (n)
Policy (n=13)	*Project 2000 Training* (Davies, C., Stilwell, J., Wilson, R., Carlisle, C., & Luker, K. 2000).	**United Kingdom (2)**	*Salaried GP Schemes* (Williams, J., Petchey, R., Gosden, T., Leese, B., & Sibbald, B. 2001)	**United Kingdom (4)**	*Return to Practice programme (RTP)* (Barriball, K. L., Coopamah, V., Roberts, J., & Watts, S. 2007)	**United Kingdom (3)**	*General Practitioner (GP) contract* (Spurgeon, P., Hicks, C., Field, S., & Barwell, F. 2005)	**United Kingdom (2)**
			Salaried GP posts (Ding, A., Hann, M., & Sibbald, B. 2008)					
			Agenda for Change (Buchan, J., & Ball, J., 2011)					
	Nurse Cadet Schemes (Draper, J., & Watson, R. 2002)		*Agenda for Change* (Buchan, J., & Evans, D., 2008)		*Family-Friendly Policies* (Robinson, S., Davey, B., & Murrells, T. 2003)			
					Work–Life Balance: family friendly policies and flexible working (Harris, R., Bennett, J., Davey, B., & Ross, F. 2010)			
	A medical internship and in-service training model for general practice (Straume, K., & MP Shaw, D. 2010).	**Norway (2)**						
	Postgraduate (vocational) training (residency) for primary care physicians carried out in-service in remote areas (Straume, K., Søndenå, M. S., & Prydz, P. 2010).						*Ethical guidance to avoid active recruitment of doctors from resource-poor countries* (Blacklock, C., Heneghan, C., Mant, D., & Ward, A. M. (2012)	
Organisational (n=11)	**Education (n=10)**	**Country (n)**			**Professional and Personal Support (n=1)**	**Country (n)**		
	Education Leadership Programme (Enterkin, J., Robb, E., & McLaren, S. 2013)	**United Kingdom (9)**			*Magnet Recognition Program - `Magnet concept'* (Van den Heede, K., Florquin, M., Bruyneel, L., Aiken, L., Diya, L., Lesaffre, E., & Sermeus, W. 2013)	**Belgium (1)**		
	Clinical career structures for nurses, including innovative posts known as nurse consultants (Drennan, V. M., & Goodman, C. 2011)							
	Rotational working programme (Kane, T. 2007).							
	Home Trusts (Andrews, G. J., Brodie, D. a, Andrews, J. P., Wong, J., & Gail Thomas, B. 2005)							
	On Secondment - Seconded Health Care Assistants (Andrews, G. J., Brodie, D. a, Andrews, J. P., Wong, J., & Gail Thomas, B. 2005)							
	Continuing professional development for both young and established (Bellman, 2002).							
	Pilot scheme for the rotational posts (Bellot, A., & Baker, L. 2005)							

	Renal Post-Registration Training Course (King, 2006).								
	New recruitment strategy of newly qualified nursing students (Baillie, L., Allen, R., Coogan, F., Radley, R., & Turnbull, L. 2003)								
	Early community-based family practice elective (Deutsch, T., Hönigschmid, P., Frese, T., & Sandholzer, H. 2013)	**Germany (1)**							

Annex 6: List of Primary Studies Analysed

Reference (Author, year)	Country	Intervention (Level, Target Profession)	Methodology (type of study, number of participants, …)	Comments on results
EU Countries / EEA-EFTA Countries				
1- Education Interventions				
Straume, K., & MP Shaw, D. (2010)	Norway	*A medical internship and in-service training model for general practice* (policy level, physicians-GPs)	The training groups in general practice and family medicine and in public health and community medicine were first evaluated in 2003 and again in 2009. In 1997 the county of Nordland was appointed as a "control group," but because of a critical physician shortage in 1998, it was allowed to implement some of the same strategies. The remote county of Sogn-and-Fjordane, on the west coast, constitutes the best comparison over the same period of time.	Positive effect/results - The main results are encouraging: Of the 267 medical graduates who interned in Finnmark from 1999 to 2006, almost twice as many as expected have accepted their first fully licensed job in the region. Of the 53 physicians who completed training in general practice and family medicine or in public health and community medicine in Finnmark from 1995 to 2003, 34 (65%) were still working in the county 5 years later.
Straume, K., Søndenå, M. S., & Prydz, P. (2010)	Norway	*Postgraduate (vocational) training (residency) for primary care physicians carried out in-service in remote areas* (policy level, student physicians)	The effect of the training programs on physician retention in Finnmark is evaluated by a longitudinal cohort study.	Positive effect/results – It was concluded that the training programs have indeed contributed to improved retention in the most challenging part of the country. In total, 65-67% of the physicians from the programs are still working in the county 5 years after completion of the group tutorial. During the years 1995–2008, a total of 40 doctors were admitted to the PH group, and by the end of 2008, 28 of them (70%) were still working in Finnmark. Added to the cohort above, this gives an overall five-year retention rate of 65%.
Davies et al., 2000	United Kingdom	*Project 2000 Training* (policy level, nurses)	The study was in two parts. One part included interviews with a representative sample of nurse managers in a range of Trusts, to identify current views on the expectations and experiences of employing Project 2000 diplomates, and is reported elsewhere (Carlisle et al. 1999). The second part, reported here, included a national questionnaire survey distributed by the United Kingdom Central Council for Nursing, Midwifery and Health Visiting (UNITED KINGDOMCC), to a representative sample of nurses in each branch and training route.	Mixed effect/results - It might have been expected that a different type of applicant would have been attracted to nursing with these changes in training. However, this study did not find evidence to support these expectations. Project 2000 training did not, at the time that this study was undertaken, attract a different type of applicant in terms of age range, prior education, gender and

				social or family responsibilities. As reported in our other paper (Carlisle et al. 1999) managers themselves also felt that Project 2000 nurses were better prepared than conventional nurses to work in the community. However, from the interview data in our study it was found that not all managers shared the same opinions about suitability to work in the community. One of the most noticeable differences found in this research was in opinion of research ability, where almost half the degree nurses felt prepared to enter research. One explanation for this finding may be that research methods have a stronger influence within degree curricula. It may also be that there is an expectation among degree nurses that they will go on to study at a higher research degree level, i.e. MPhil/PhD. This difference might have been expected although it remains to be seen whether the potential is fulfilled. The majority of nurses in our study, 70–80%, regardless of training route, intended to remain in nursing and almost as many had been qualified for over one year, providing sufficient time for opinions to have formed about whether a suitable career path had been chosen. Although slightly more conventionally trained nurses, 24%, compared to 18% of Project 2000 nurses, were considering leaving nursing it is difficult to say if this perceived difference in attitudes was borne out at a later date. The two main reasons given in our study for considering leaving nursing were pursuit of other goals and poor career prospects or poor pay expectations. The concern about pay at the time of the study may be seen as a forerunner of the current debate on the need for re-examination of pay levels in order to retain trained staff. The study findings also may have been an indication

				that conventionally trained nurses perceived themselves to be at a disadvantage compared to Project 2000 nurses. It could be argued that this study took place at a point in time which was too early for these perceptions to have been either confirmed or refuted by actual change in promotion patterns, although the study did show that there was no immediate career advantage of Project 2000 training. At the time of change in nurse training, against a background economic recession and unprecedented changes in the NHS (McCleod Clark et al. 1995) it could also be argued that alternative career paths after training had also been reduced, thus preventing those who might have left nursing from actually doing so. At the time of the study it was known that two of the three Project 2000 courses from which providers drew their workforce were coming up for revalidation. Although factual data were obtained in this research, the opinions expressed were drawn from a changing baseline and opinions then may not reflect those of today's diplomates. Recent information has shown that the number of applicants for nurse training has fallen by approximately 15% over the last four years (Brooks 1998) and it may be that the profession is still not attracting those with higher qualifications as was originally hoped. There were no significant differences found in type of nurse recruited to Project 2000 training courses as might have been expected.
Draper, J., & Watson, R. (2002).	United Kingdom	*Nurse Cadet Schemes* (policy level, nurses and midwives)	The first cohort of former cadets entered nurse education in September 2000. After 9 months they were invited to contribute to an evaluation of the cadet scheme and their present experience. The evaluation consisted of a structured questionnaire sent to all the former cadets, a focus group interview with the former cadets, informal discussions with university staff and brief documentary analysis.	Mixed effect/results - The cadets felt better prepared clinically than academically and found an element of repetition in the nursing programme. They valued their preparation, which they felt put them at an advantage over other nursing students. However, some of them experienced

				difficulties in the transition to higher education and further review is therefore required to establish the success of cadet schemes.
Drennan, V. M., & Goodman, C. (2011)	United Kingdom	*Clinical career structures for nurses, including innovative posts known as nurse consultants* (policy level, consultant nurses)	NM	Mixed effect/results - This case study found that within two years of the ten nurse consultant posts being created in a primary care organization only five remained and within five years (2009) only two part time posts, with the original appointees, remained. As a workforce innovation, the conclusion must be, that in this community services setting the nurse consultant roles were not successfully assimilated into the health care system.
Andrews, G. J., Brodie, D. a, Andrews, J. P., Wong, J., & Gail Thomas, B. (2005)	United Kingdom	*Home Trusts* (organizational level, student nurses)	The data collection was carried out in the spring term of 2002 in two academic institutions, Buckinghamshire Chilterns University College (BCUC) and Thames Valley University (TVU) and was funded by a local purchaser of nurse education, the Northwest London NHS Workforce Development Confederation. The methodological framework of the study was divided into three complementary phases. The first phase consisted a quantitative questionnaire survey of first, second and third year diploma and degree level students (n= 592) and former students who had qualified within the last 12 months (n= 58). The second phase involved focused group discussions (n= 7) with students and semi-structured telephone interviews (n= 30) with former students. The third phase involved interviews with recruitment managers in London hospitals (n= 3).	Positive effect/results - Home Trusts provide an effective and supportive clinical placement-learning environment, are more attractive as first destination employment locations, than those Home Trusts that provide a less facilitative clinical placement experiences. Generally, statistical analysis found that ratings of Home Trust placements as a learning environment can significantly affect organizational attractiveness.
Andrews, G. J., Brodie, D. a, Andrews, J. P., Wong, J., & Gail Thomas, B. (2005)	United Kingdom	*On Secondment - Seconded Health Care Assistants* (organizational level, student nurses)	The data collection was carried out in the spring term of 2002 in two academic institutions, Buckinghamshire Chilterns University College (BCUC) and Thames Valley University (TVU) and was funded by a local purchaser of nurse education, the Northwest London NHS Workforce Development Confederation. The methodological framework of the study was divided into three complementary phases. The first phase consisted a quantitative questionnaire survey of first, second and third year diploma and degree level students (n= 592) and former students who had qualified within the last 12 months (n= 58). The second phase involved focused group discussions (n= 7) with students and semi-structured telephone interviews (n= 30) with former students. The third phase involved interviews with recruitment managers in London hospitals (n= 3).	Positive effect/results - Secondment seems to be an effective way of fostering loyalty and attracting students back to work. Although its potential is limited to the numbers of willing and able HCAs within a particular trust, given its effectiveness, this innovation should be developed as a potentially valuable source of nursing students.

Bellman, L. (2002)	United Kingdom	*Continuing Professional Development* (organizational level, physicians-GPs)	The study explored the perspectives of 34 stakeholders, and investigated the experiences of the 14 GPAs (aged 29–42) who participated in the nine month scheme, and 5 GPAs' perspectives from a previous year's scheme. A Steering Group, representative of all stakeholders, reviewed and contributed to the evolving evaluation process. Data collection, during the nine month evaluation, included: review of documentation of the scheme, including the previous quantitative evaluation report, publications and e-mails; audio-taped Steering Group and GPA meetings; audio-taped semi-structured interviews with the stakeholders and the GPAs; non-participant observations of GPAs in the consulting room; and GPAs' personal journals. The multi-method approach to data collection enabled individual, group and team perspectives of the scheme and their ongoing contribution to the scheme's development. The methods enabled triangulation of the data. For example, comparing and contrasting narratives (at interviews, meetings) with observation and documentary evidence. Thematic analysis was also undertaken to explore the complex experiences of the GPAs.	Mixed effect/results - The scheme is acknowledged by the majority of stakeholders as very worthwhile particularly when compared with similar schemes; Undertaking the scheme is also an empowering process for the GPAs. It has enhanced their knowledge and professional development as it provides expertise in research, teaching, facilitation and peer support. The diversity of experiences has further enhanced the knowledge; For many of the GPAs the scheme has definitely been a successful transitional process towards a partnership or more permanent post in general practice (Positive). The difficulty of undertaking a research project in nine months was often highlighted. In the practices, surgeries could finish late or GPAs were late leaving as they stayed to complete patient records etc. For a female GPA there was an additional constraint on her time (Negative).
Bellot, A., & Baker, L. (2005)	United Kingdom	*Pilot Scheme for the Rotational Posts* (organizational level, nurses)	The participants came into post in January 2004 and were inducted into the PCT following standard arrangements. An induction specific to the project was also undertaken to identify each participant's needs. Rotation through the clinical placements commenced with support from learning sets and mentorship. Applications for sponsorship for the specialist/practitioner course of choice followed soon afterwards, in line with the Workforce Development Confederation's timescales for recruitment. As three of the participants had come into post from secondary care, it was recognised that they would need particular support in their understanding of primary care. In order to address this, a three-month modular course on the role and function of primary care from an external educational provider was built into the rotational placements for all the participants. The sponsorship process was completed in July, with all the nurses achieving sponsorship for their specialist/ practitioner course starting in September 2004.	Mixed effect/results - Despite the operational difficulties encountered by the participants, the consensus appears to be that this scheme offered them a positive experience. However, there were a number of main areas for further development and these were identified as: A more realistic advertising and recruitment process, including a single interview for the rotational post, sponsorship and the course; Better preparation of placements and improved communication; Greater understanding of the rotational staff nurse role by staff at placements; Shorter 'taster' placements at the beginning of the programme before decisions need to be made about courses and to aid the identification of personal preferences; Some structured learning outcomes to help staff at placements and participants understand the purpose of the scheme.

Enterkin, J., Robb, E., & McLaren, S. (2013)	United Kingdom	*Education Leadership Programme* (organizational level, nurses and midwives)	An evaluation of a programme of education for leadership: Three cohorts (n = 60) completed the programme. Semi-structured questionnaires were completed by participants (n = 36: 60%) at the conclusion of the programme. Qualitative data from questionnaires was analyzed using a thematic approach. Semi-structured questionnaires designed by the teaching team consisted of nine questions, which were mainly open ended. No pilot study was done due to time constrains.	Mixed effect/results - The majority of participants had benefited from the leadership programme and valued this development as an empowering preparation for future careers. Other participants faced individual challenges due to the academic tasks that seems like a burden to them. More preparation was identified as important to continue.
Kane, T. (2007)	United Kingdom	*Rotational Working Programme* (organizational level, nurses)	The proposal was that staff should rotate between a level three neonatal intensive care unit and a level two/one high dependency special care neonatal unit. Phase one of the programme was the appointment of a senior nurse to work clinically and managerially across the two units to implement rotational working. The senior nurse spent one day each week in a clinical role in the level three unit, and four days in management and clinical shifts in the other unit. The wish of staff to update and maintain professional knowledge and competencies was the basis for discussions about how to implement phase two of the programme. A three-month pilot rotation was planned that would involve one trained member of staff from each unit, who was keen to enhance their development. A self-directed competency packages were developed for the units to support staff on rotation. These included aspects of neonatal care that were specific to a level three unit as well as managerial competencies based on the NHS Knowledge and Skills Framework (DH 2004b). The senior nurse provided support, coordinating her clinical shifts in both units to work with the rotating staff member. In her absence, preceptors were available. One-to-one meetings took place weekly to reflect on needs, fears and personal development pathways. These meetings helped with the development of phase three of the programme, in which three more volunteers were invited to rotate between the units for between six weeks and three months, supported by the senior nurse. Ongoing evaluation meetings meant that staff were able to improve their potential for negotiation within the unit and provided an environment where each individual's needs could be considered. The nurses also kept reflective journals, which were used to build up an understanding of the rotating staff nurses' roles and skills and for evidence of professional development.	Positive effect/results - Morale has improved in the level two/one unit, resulting in a decrease in sickness absence from 15 per cent per annum to per cent over two years. Recruitment also improved in these units over this period, from a whole time equivalent vacancy of 3.19 trained staff to a total present funded vacancy of 0.96 whole time equivalent. It is clear that rotational working has strengthened skills and changed attitudes among those involved.
King, J. (2006)	United Kingdom	*Renal Post-Registration Training*	Semi-structured interviews were undertaken and taped to collect data from the staff. These recordings were transcribed	Positive effect/results - Feedback was complimentary which was satisfying for the

		Course (organizational level, nurses)	and reviewed by the participants. Analysis of the audit was performed using qualitative and quantitative methods. The interviews were analyzed using qualitative methods. The findings of the interviews were reviewed and discussed by the study participants; 8 taped interviews were conducted for staff (25%), who had completed the renal course. All had been registered/qualified between 2-27 years and had between 2-9 ½ years' experience in renal/nephrology nursing.	course organizer. Nurses felt it bridged the practice/theory gap as well as developing critical and reflective thinking. Other benefits included: an increase in confidence, knowledge and skills; broadened outlook/presented a wider outlook. The course cemented concepts; gave increased understanding to reasons and rationale for practice; it enhanced assessment and decision- making skills and could enable promotion or a pathway to higher education. Job satisfaction is a highly significant factor for recruitment and retention of staff. Caring for the renal staff or any employee can be overlooked by those in authority whose overall plans may forget the individual. This study also shows that the course has increased job satisfaction and decreased the need for recruitment of new staff.
Baillie et al. (2003)	United Kingdom	*implementation of new recruitment strategie of newly qualified nursing students* (organizational level, student-nurses)	An exploratory survey approach was used; This questionnaire was first distributed to Group A (18 students), and then amended to take account of a new recruitment strategy implemented (detailed later in this paper), prior to distribution to Group B (24 students) and later, Group C (20 students); A follow-up questionnaire? was also developed, to elicit further information about the students' experiences once recruited to the Trust, and this was distributed to students actually recruited to the Trust from Groups B and C, 6 months after recruitment. The questionnaires were distributed through the internal post to the 36 students from Groups B and C who were recruited to the Trust, obtaining a 72% (n ¼ 26) response rate.	Mixed effect/results - In comparison with the group surveyed prior to implementation of the new strategy, the recruitment rate was certainly higher amongst the groups experiencing the new strategy, and the new recruitment strategy developed by the working party was evaluated positively by the two groups surveyed. Consequently, this approach will be implemented for subsequent adult branch groups based on this Trust site.
Deutsch, T., Hönigschmid, P., Frese, T., & Sandholzer, H. (2013)	Germany	*Early Community-based Family Practice Elective* (organizational level, student physicians)	All physicians who spent more than 50% of their time in patient care (and less than 50% in research) at the teaching hospital of the Hannover Medical School (839, after exclusion of pre-test participants) were surveyed. Based on existing satisfaction studies, a self-administered questionnaire that contained 28 items was designed, including items measuring several dimensions of physician job satisfaction; the monetary and non-monetary incentives the physicians experienced in the recent past; other job-related potential confounding factors and socio-demographic questions. Respondents were asked to rate each job satisfaction item on five-point Likert scales regarding both	Positive effect/results - The study examine the effects on medical students consideration of family practice as a career option, their interest in working office-based, and several perceptions with regard to specific aspects of a family physician's work. The results indicate that a short community-based family practice elective early in medical education may positively influence medical students considerations of a career in family practice. Furthermore,

			satisfaction with and importance of the item. Data were analyzed using descriptive statistics, factor and correlation analyses.	perceptions regarding the specialty with significant impact on its attractiveness may be positively adjusted. A significantly higher rate of students favoring family practice as a career option after the elective was found (32.7% vs. 26.0%, p = 0.039). Furthermore, the ranking of family practice among other considered career options improved (p = 0.002). Considerations to work office-based in the future did not change significantly.
2- Financial Incentives Interventions				
Buchan, J., & Ball, J. (2011). Evaluating the impact of a new pay system on nurses in the UK. Journal of Clinical Nursing, 20, 50–9.	United Kingdom	*Agenda for Change* (policy level, nurses)	Secondary analysis of survey data. Methods: Analysis of results of large-scale surveys of members of the Royal College of Nursing of the United Kingdom (RCN) to assess the response of nurses to questions about the implementation process itself and their attitude to pay levels.	Mixed effect/results - The most striking overall picture emerging from the 2006 survey, conducted just at the time of full implementation, was that few respondents viewed Agenda for Change positively. Only one in five thought that the pay system was fairer now than before AfC (55% disagreed with the statement). Implementation was criticised with 63% saying the transition was too slow and only 24% saying they were satisfied with the way AfC has been implemented in their organisation. Less than half (43%) said that their employer kept them well informed about the transition to AfC. Fewer than one in 10 respondents thought that AfC/KSF had improved the quality of care where they work. There was also criticism (Buchan & Evans 2007, House of Commons Health Committee 2007) that in the early phase of implementation there was little evidence emerging that AfC was delivering the claimed 'benefits' (NHS Employers 2006) of improved quality of care and effectiveness. Whilst this criticism could be countered by the argument that it was 'early days' for the new system, an analysis of more recent data suggests that the new pay system has not yet met all its objectives, as discussed later. The results have demonstrated that there was some positive change after

				implementation of AfC in 2006, mainly sometime after initial implementation, and that the process of implementation itself raised expectations that were not fully met for all nurses. There were also clear signs of differential impact and experience, with some categories of nurse being less satisfied with the process of implementation. The overall message is that a national pay system has strengths and weaknesses compared to the local systems used in other countries and that these benefits can only be maximised by effective communication, adequate funding and consistent management if the system is to be overhauled effectively.
Buchan, J., & Evans, D. (2008). Assessing the impact of a new health sector pay system upon NHS staff in England. Human Resources for Health, 6:12.	United Kingdom	*Agenda for Change* (policy level, health professionals)	This study was the first independent assessment of the impact of Agenda for Change at a local and national level. The methods used in the research were a literature review; review of 'grey' unpublished documentation provided by key stakeholders in the process; analysis of available data; interviews with key national informants (representing government, employers and trade unions), and case studies conducted with senior human resource managers in ten NHS hospitals in England.	Effectiveness of intervention was not mentioned.
Ding, A., Hann, M., & Sibbald, B. (2008)	United Kingdom	*Salaried GP Posts* (policy level, physicians-GPs)	This cross-sectional study used GMS and PMS statistical data (the GP census) available from The Information Centre, which annually records all practicing GPs in England.	Mixed effect/results - Salaried status appears to have reduced limitations in the labour market, leading to better workforce deployment from a GP's perspective. However, there is no evidence to suggest it has relieved inequalities in GP distribution.
Williams, J., Petchey, R., Gosden, T., Leese, B., & Sibbald, B. (2001)	United Kingdom	*Salaried GP Schemes* (policy level, physicians-GPs)	All first wave PMS pilot sites with salaried GP posts known to be 'live' in October 1998 were included in the analysis of employment contracts and job descriptions. Information on recruitment was obtained by a questionnaire survey of PMS sites that were intending to recruit a salaried GP.	Positive effect/results - Salaried contracts offer positive incentives to recruitment in terms of reduced hours of work and freedom from administrative responsibility. The benefits in terms of improved recruitment are, at present, modest, but might be enhanced by the addition of professional development schemes and flexible/part-time working.
3- Professional and Personal Support Interventions				
Barriball, K. L., Coopamah, V., Roberts, J., & Watts,	United Kingdom	*Return to Practice Programme* (RTP) (policy level, nurses)	This was a multi-method study with data being collected in two concurrent phases: at first, from current RTP students (questionnaire and focus groups: n=17) to gain insight into the	Effectiveness of intervention was not mentioned.

S. (2007)			returning to practice experience; and secondly, all students who had completed a RTP course in the School during the previous 2 years (telephonic interviews: n=78).	
Harris, R., Bennett, J., Davey, B., & Ross, F. (2010)	United Kingdom	*Work–Life Balance: family friendly policies and flexible working* (policy level, mid-life working nurses)	Data was collected over a 9-month period in 2005 using a range of methods including biographical methods, semi-structured interviews and focus groups with nurses and health care assistants aged 45 and over. A biographical life course perspective using semi-structured interviews (Chamberlayne et al., 2000) was adopted to take into consideration diversity of work and life experiences, especially of women. Individual biographies were collected before each interview and involved charting important life events such as marriage, pregnancies and partner's redundancy alongside their own career pathway. The lifeline and some of the interview questions were drawn from a schedule developed by Crompton et al. (2003). Seventeen nurses and one HCA participated in the individual interviews at Trust A and seventeen nurses and two HCAs at Trust B. Five nurses aged 45 and over participated in a focus group in each Trust. The aim of the focus groups was to assess views of Trust policies in terms of retention and retirement strategies, flexibility, training and career development opportunities, organizational and professional barriers to and facilitators of implementation of policies for older nurses. In addition to focus groups semi-structured telephone interviews were undertaken with managers in Trust A (n = 8) and Trust B (n = 9) to identify main human resource concerns and assess views of: deployment of older members of the workforce, policies targeted at older workers and needs of older nurses in terms of flexibility, training and development. All interviews were recorded with the participants' permission and were transcribed and analyzed aided by the qualitative software package, Atlas.ti, using the constant comparative method, identifying themes and data patterns (Patton, 1987). The analysis of the data involved within case analysis and, across case analysis (Eisenhardt, 1989). Data were segmented, coded and arranged into categories, which facilitated comparison within the data of each case study site and across the data of both case study sites (Strauss and Corbin, 1990). The initial stage of the analysis involved 'open coding' where the broad features of working life were identified. The second stage of the analysis involved 'axial coding' of data and during this process relationships within and across the data emerged. Data were compared across both sites to enhance naturalistic	Negative effect/results - It was illustrated some of the operational difficulties in implementing a national policy at local level that suggest flexible working initiatives may be too uniform and prescriptive to accommodate the needs of all workers. Certainly flexible working is not available to everyone. The findings across both Trusts reveal a number of barriers to the successful implementation of flexible working for nurses working in mid-life. The increased difficulty to implement flexible working in 24-h inpatient areas is not surprising, however, it is interesting that the professional culture within nursing appears to discourage flexible working across the board. This study suggests that the implementation of flexible working has caused strain and may be producing an inflexible workforce with the result that older nurses may be required to compensate for the flexible working patterns of their younger colleagues. There is evidence that the availability of flexible working is key to retaining nurses. Thus, the policies to encourage nurses to remain in the workforce may be counterproductive for nurses working in mid-life. It is suggested that directing policies to improve work–life balance towards staff with childcare needs, while very important, may be disadvantaging older nurses who are likely to be more experienced and skilled.

			generalization (Stake, 2000). The data collected from the managers were continually compared with data collected from the nurses in order to refine the development of categories to assess the organizational and professional barriers and facilitators to policy implementation.	
Robinson, S., Davey, B., & Murrells, T. (2003)	United Kingdom	*Family-Friendly Policies* (policy level, nurses)	The cohort was recruited from RGNs qualifying in England between September 1990 and August 1991. The sample comprised half the sets qualifying from all colleges of nursing in three regional health authorities. The authorities were selected purposively to represent diverse geographical locations and to include colleges that together encompassed a wide range of educational and service experiences and diversity of student populations. Of the eligible qualifiers, 92 per cent (1,164) agreed to take part. Five questionnaires were sent at intervals between qualification and four years after qualification; response rates to each were between 83 per cent and 92 per cent (as a proportion of those to whom the questionnaire was sent). A sixth questionnaire was sent to 783 cohort members when they had been qualified for eight years in 1998/1999 with a response rate of 79 per cent (620, 53 per cent of the original cohort). In letters accompanying the questionnaires, respondents were assured that all data would be treated in confidence, and data reported in a way that would not identify individuals or organizations. Of the respondents, 34 per cent (210) indicated they had taken one or more breaks for maternity leave between four and eight years after qualification. A separate study, the focus of this paper, was undertaken with these women and focused on their preferences and experiences in relation to key aspects of family-friendly policies discussed in the background section of the paper.	Effectiveness of intervention was not mentioned.
Van den Heede, K., Florquin, M., Bruyneel, L., Aiken, L., Diya, L., Lesaffre, E., & Sermeus, W. (2013)	Belgium	*Magnet Recognition Program* (organizational level, nurses)	3186 bedside nurses of 272 randomly selected nursing units in 56 Belgian acute hospitals were surveyed. A GEE logistic regression analysis was used to estimate the impact of organization of nursing care on nurse reported intention to leave controlling for differences in region (Walloon, Flanders, and Brussels), hospital characteristics (technology level, teaching status, and size) and nurse characteristics (experience, gender, and age). In-depth semi-structured interviews with the chief nursing officers of the three high and three low performing hospitals on reported intention to leave were held. The qualitative part of this study was conducted in a selection of six hospitals. Due to language restrictions only Flemish hospitals were eligible (37 Flemish hospitals) were ranked based on the	Positive effect/results - This study, together with the international body of evidence, suggests that investing in improved nursing work environments is a key strategy to retain nurses. Hospitals with lower intention-to-leave rates implicitly adopt policy components recommended by the magnet hospital program. The elements of the Magnet recognition program can be considered as an effective intervention to improve the quality of the work environment and to lower nursing staff turnover.

			percentage of nurses' reports on the intention to leave the hospital. The three hospitals with the highest proportion of nurses reporting an intention to leave the hospital (low performing hospitals) and the three hospitals with the lowest proportion of nurses intending to leave (high performing hospitals) were selected. Cases at both ends of the continuum were selected to obtain contrasting information on the presence or absence of best practices to provide sound nursing practice environments.	
4- Regulation Interventions				
Spurgeon, P., Hicks, C., Field, S., & Barwell, F. (2005)	United Kingdom	*General Practitioner (GP) Contract* (policy level, physicians-GPs)	A postal survey was conducted, using a specially constructed questionnaire. A random sample of 600 GPs working within the West Midlands was invited to participate in the survey. This constituted 20% of the available GPs in the region, and included both full and part-time practitioners. Of the 600 questionnaires distributed, 360 were returned, representing a 60% return rate. A customized questionnaire was developed. The items were constructed following a two stage process: a thematic review of the available literature surrounding the new contract and a series of in-depth semi-structured interviews with a small sample of GPs. The revised version of the questionnaire was distributed by post to 600 GPs randomly selected from the West Midlands register. It was accompanied by an explanatory covering letter from the Postgraduate Medical Dean of the region and a safe for return. A total response of 360 questionnaires was obtained, constituting a reply rate of 60%. The replies were coded and entered onto a statistical package for the social sciences (SPSS) database for analysis.	Mixed effect/results - Overall, those aspects of the new contract that are perceived to reduce workload and enhance salary were supported, while those that increase targets and bureaucracy were not. Generally, there was only moderate support for the changes, which could be explained by a general scepticism about any top-down modifications, the practicality and power of the changes to impact upon practice and/or a genuine belief that the modifications are unacceptable. Taken together, these results provide an indicative focus for managing the implementation of the new contract, especially with regard to its least acceptable components and the emerging differences between subgroups of GPs.
Blacklock, C., Heneghan, C., Mant, D., & Ward, A. M. (2012)	United Kingdom	*Ethical Guidance to avoid active recruitment of doctors from resource-poor countries* (policy level, physicians)	NM	Negative effect/results - Ethical guidance was ineffective in preventing mass registration by doctors trained in resource-poor countries between 2001 and 2004 because of competing NHS policy priorities. Changes in United Kingdom immigration laws and bilateral agreements have subsequently reduced new registrations, but about 4000 new doctors a year continue to register who trained in Africa, Asia and less economically developed European countries.

NA – Not Available / NM – Not Mentioned

Annex 7: List of Grey Literature documents

Reference (Author, year)	Country	Intervention (Level, Target Profession)	Additional information of the intervention	Comments on results
EU Countries / EEA-EFTA Countries				
1- Education Interventions				
Sermeus & Bruyneel (2010)	Czech Republic	Expand domestic health training capacity (policy level, nurses)	NM	The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.
Sermeus & Bruyneel (2010)	Czech Republic	Duration of educational programmes down (Policy level, nurses)	MN	The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.
European Observatory on Health Care Systems (2000)	Czech Republic	Increasing the age of entry to nursing (policy level, nurses)	There are plans to raise the age for entry into nursing to 19 years (after graduation from high school), since girls (the vast majority of nurses are female) who start at 15 years of age often leave the profession.	Effectiveness of intervention was not mentioned.
Jesse et al. (2004)	Estonia	Expand domestic training capacity (policy level, nurses)	Recognizing that the nursing shortage threatens the implementation of hospital reforms, the Ministry of Social Affairs has proposed expanding nurse training. However, this proposal may be hampered by lack of training capacity. The Ministry of Social Affairs recognizes that the increasing shortage of nurses threatens the further implementation of hospital reforms, which include major increases in long-term and nursing care capacity. In 2004, it put forward a proposal to the Ministry of Education to fund training for 500 basic nurses plus 200 specialist nurses and 40 midwives. The proposal is based on the goal	Negative effect: Lack of training capacity, mainly due to inadequate numbers of teaching staff

			of training 7000 new nurses by 2015 to meet the target of 10 nurses per 1000 inhabitants. The extra training is needed due to the fact that 28% of nurses are 50 years or older. However, while there is political will to increase the number of nurses being trained, there seems to be a lack of training capacity, mainly due to inadequate numbers of teaching staff. In 1991, a master's course in nursing was established at the University of Tartu Faculty of Medicine for nurses with some work experience. By 1998, there were 52 graduates from this course. Forty new master's-level students are expected in 2004. These graduates are seen as the main resource for further training of basic and specialist nurses. It took considerable effort to increase the admission quota to 100 per year in 2000–2003 and to 140 from 2006 onwards. This was a result of intensive consultations in which, by 2002, the Ministry of Social Affairs claimed that 3 physicians and 8 nurses per 1000 population should be the optimal goal to reach in 10 years (Ministry of Social Affairs, 2002). To achieve this, the annual intake of student nurses should be 600, but the lack of financial and human resources did not allow this and it remained at 300–320 students for a decade.	
OECD (2008) Chevreul et al. (2010)	France	Expand domestic health training capacity (policy level, physicians and nurses)	The government has sought to increase the inflow of professionals by raising the numerus clausus for several professions. HSIT 2010: Recently, a number of measures have also been instigated to address the anticipated shortage in physicians. At national level, the numerus clausus has been increased (from 4700 in 2002 to 7100 in 2007). In order to meet the increased demand, the government has significantly increased the number of places available in nursing schools since 1999 (from 18 270 in	Positive and negative results: Enrolment almost doubled between the middle of the 1990s and 2007.// While appealing at first sight, this policy carries major drawbacks: its effect is delayed by the length of the training period; it does not address geographical disparities in a specific way, partly because self-employed doctors are free to establish their practice wherever they wish; and large variations in the quotas are the source of lasting discrepancies between the number of

			1999 to 30 000 in 2004 and 2005), but the number of applications has not been sufficient to fill all positions, raising questions about the attractiveness of the profession.	graduating and retiring professionals (HSIT 2010) // However, this does not address geographical disparities partly because self-employed doctors have no restrictions in where they choose to establish their practices. The plan, therefore, also developed financial incentives for doctors to practise in "medically under-served areas" (see Section 4.2).
Chevreul et al. (2010)	France	Internships in regions with a shortage (policy level, medical students)	Historically, public authorities have tried to remedy geographical disparities through differentiation within the numerus clausus system (see Section 4.2) and the number of places open for internship, giving priority to regions with a low ratio. However, after graduation, there is no restriction on the areas where doctors are allowed to practise. Therefore, although regional disparities have been reduced over the past 30 years, policies intended to influence the regional numbers of medical students have not always had the expected results. In fact, only 69% of doctors practise in the region where they did their training, and many specialists find internships in regions where there are fewer doctors and then return to their region of origin to practise.	Positive and negative results: Although regional disparities have been reduced over the past 30 years, policies intended to influence the regional numbers of medical students have not always had the expected results. In fact, only 69% of doctors practise in the region where they did their training, and many specialists find internships in regions where there are fewer doctors and then return to their region of origin to practise.
Steinhaeuser et al. (2013)	Germany	Competence-based curriculum development (policy level, physicians-GPs)	A five-step, peer-based method was used for the curriculum development process including panel testing and a "test version" of the curriculum for the pilot implementation phase. The CanMEDS framework served as a basis for a new German competence-based curriculum in general practice training. Four curricula from European countries and Canada were reviewed and, following required cultural adaptions, key strengths from these were integrated. For the CanMEDS "medical expertise" element of the curriculum, the WONCA ICPC-2 classification of patient's "reason for encounters" was also integrated.	In 2014, an evaluation is planned using feedback from users of the test model as a further stage of the implementation process. An important feature of this process is that peer trainers and trainees were actively involved in the drafting, which increases the likelihood of "ownership" and acceptance of the curriculum. Results regarding the feasibility of implementation will be available following the planned evaluation in 2014 (Steinhaeuser et al., 2013).
OECD (2008)	Italy	Expand domestic health training	The places in nursing programmes have	Negative effect: The places in nursing

		capacity (policy level, nurses)	been increasing at 2% annually since 2000 (stated in a document of 2008).	programmes have been increasing at 2% annually since 2000, yet budget cuts have prevented the creation of more nursing care positions, resulting in a nursing care shortage.
Rechel et al. (2006)	Lithuania	Expand domestic health training capacity (policy level, medical students)	Starting in 2002, the number of study places was increased to 400 students per year (Gaizauskiene et al. 2003).	Effectiveness of intervention was not mentioned.
Rechel et al. (2006) Johnsen (2006)	Norway	Expand domestic health training capacity (policy level, physicians and nurses)	Since 1990, the number of physicians being trained has gradually increased, with an impact on the job market since the end of the 1990s	Mix results: The action plan "Right person on the right spot" (Rett person på rett plass) 1998–2001 has resulted in an increase of 12% in the total number of health and social care workers in the period 1998–2001. This increase was sufficient to sustain the goals in the action plans for the elderly and mental health patients. Although recent government policy has focused on increasing the number of students enrolling at health training facilities (impact on the job market since the end of the 1990s), Norway continues to look abroad to recruit health care staff, primarily from other Nordic countries and the three Baltic republics. The Ministry of Health has recently recruited a considerable number of nurses and other personnel from Finland.
Dussault et al. (2010)	Slovenia	Expand domestic health training capacity (policy level, physicians and nurses)	In the case of medical, dental, pharmacy and nursing students, a "numerus clausus" is proposed each year by the Government to Parliament for final confirmation. There have been several attempts to make Slovenia "self-sufficient", by scaling-up the capacity for the education of health professionals. A second medical faculty in Maribor was opened in 2003 and four additional nursing schools were created between 2003 and 2008.	Mix effects: deficit is particularly challenging for the biggest hospitals and social care institutions, which all have problems in finding adequate numbers of nurses willing to seek employment there. This is still the case in spite of the recent establishment of a third nursing school in Izola (in 2003). Such a situation and trend led to the development of practical plans to establish a fourth nursing school in Jesenice (first students admitted in 2008).
Svensson et al. (2011).	Sweden	Expand domestic health training capacity (policy level, medical and dentistry students)	The medical faculties have been extended	Mix effects: The medical faculties have been extended in 2009 but many informants still believe the extension is inadequate as large numbers of retirements and an increased population is expected. The insufficient number of student being able to study

				dentistry or medical education is an obvious bottleneck, as it slows down the process of graduating more dentists and physicians.
Sabin et al. (2012)	United Kingdom	The Good Practice Guidance for Recruitment, Selection and Retention (policy level, midwives and nurses students)	The report was based on the findings of a literature review, national benchmarking exercise and a detailed survey of recruitment, selection and retention practices in pre-registration Nursing and Midwifery programmes. It provides evidence-based indicators of good practice to support the work already being undertaken across Higher Education and service in Scotland and makes proposals for further initiatives.	Effectiveness of intervention was not mentioned.
Barrett (2007)	United Kingdom	Clinical role of nurse lecturers (policy level, nurses)	The most commonly used method for formalizing the clinical role of nurse lecturers is the 'link tutor' role (Day et al., 1998).	Effectiveness of intervention was not mentioned.
Baumann et al. (2006)	United Kingdom	Lifelong learning framework (policy level, managers, supervisors, health professionals)	This framework is directed at NHS organizations, managers, supervisors, and staff. The goal is to help staff develop their skills to support changes and improvements in patient care, take advantage of wider career opportunities, and realize their potential. This framework will be implemented by the establishment of a new NHS University and making the NHS an effective learning organization.	Effectiveness of intervention was not mentioned.
Hull et al. (2000)	United Kingdom	London Initiative Zone Educational Incentives (LIZEI) (policy level, physicians-GPs)	Following the Tomlinson report of 1992, London Initiative Zone Educational Incentives (LIZEI) funding was introduced for a three-year period to improve recruitment, retention, and educational opportunities for general practitioners working within inner London.	Effectiveness of intervention was not mentioned.
OECD (2008) Rechel et al. (2006)	United Kingdom	Expand domestic health training capacity (policy level, physicians)	NM	Mixed effect: Entry to medical schools has been increased by 30%. The expansion of training places for doctors and nurses since 2000 has led to greater self-sufficiency in the workforce in England, resulting in the government changing immigration rules to make it more difficult for overseas staff (outside the EEA and Switzerland) to come

				to England to work. Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.

Reference (Author, year)	**Country**	**Intervention (Level, Target Profession)**	**Additional information of the intervention**	**Comments on results**
EU Countries / EEA-EFTA Countries				
2- Financial Incentives Interventions				
Gerkens & Merkur (2010)	Belgium	*Interest-free loans (up to €15 000) and subsidies (of €20 000) to doctors starting a GP practice* (policy level, physicians-GPs)	The Impulse I fund was created to grant interest-free loans (up to €15 000) and subsidies (of €20 000) to doctors starting a GP practice after July 2006 in "urban positive active zones" or areas with a shortage of GPs, defined as area with fewer than 90 GPs per 100 000 population, or areas with a population density of less than 125 per km2 and with less than 120 GPs per 100 000 population. An additional loan of €30 000 was provided to self-employed GPs and free administrative assistance during the first 18 months following the start of the practice was also provided (Royal Decree of 15 September 2006). About 5% of active GPs have already used this procedure. Fees to encourage increased GP availability were also created. Availability fees are allocated to attending GPs for any care provided in a given area and population. From July 2008, these fees cover availability for the weekend (48 hours per weekend), official holidays (24 hours per holiday), and weekdays from 7 p.m. until 8 a.m., which have been communicated to the competent medical commission (NIHDI 2010h).	Positive effect/results - About 5% of active GPs have already used this procedure.

World Health Organization Regional Office for Europe (2011b)	Bulgaria	*Financial compensation through the National Health Insurance Fund for GPs working in remote areas* (policy level, rural practice physicians-GPs)	NA	Effectiveness of intervention was not mentioned.
World Health Organization Regional Office for Europe (2011a)	Croatia	*Financial incentives for GPs working in rural areas* (policy level, physicians-GPs in rural areas)	Rural general practitioners in Croatia receive higher capitation fees, based on patient populations that are smaller than they are in more densely populated areas.	Effectiveness of intervention was not mentioned.
Sermeus & Bruyneel (2010)	Czech Republic	*Increase reimbursement* (policy level, nurses)	NM	Positive effect/results - The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Domestic programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact, but no lasting effect in the medium to long term (Bourgueil et al., 2006) possibly because wage payments alone cannot compensate for lack of facilities and for lack of access to good education for doctors' and nurses' families. Similar issues arise in middle income countries, notably South Africa. It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006). Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups. General: Literature reviews on nursing supply found only a weak positive relationship between wage and labour supply (Shield, 2004; Chiha and Link, 2003; and Antonazzo et al., 2003). However, there is some evidence that wage is one underlying reason for leaving the profession (Hasselhorn et al., 2005 in OECD 2008 Looming Crisis).
Buchan & Black (2011)	Czech Republic	Implementation of salary increases (policy level, nurses and midwives)	In 2009, the government of the Czech Republic decided to increase the salaries of nurses and midwives working in the public sector. The increase was divided into three	Positive effect/results - The improvement in pay and conditions of Czech nurses working for government hospitals in 2009 occurred at the same time as reductions in vacancies,

			steps, and the salaries were supposed to increase by 15% (approximately 100 Euro per month) in overall terms between June 1st and July 1st 2009.	an increase in overall staffing numbers and an increase in intakes to nurse training. While it is likely that the two issues are connected, causality cannot be demonstrated with available data sets, and broader economic changes may also have been a factor in these changes.
Olejaz et al. (2012)	Denmark	*Improved social and professional environments (with group practices)* (policy level, not specified)	Recruitment of young doctors into general practice has been supported by an increasing recognition of general practice as a formalized specialty with growing scientific activity, improved social and professional environments (with group practices) and an advantageous income compared with hospital doctors.	Effectiveness of intervention was not mentioned.
Ono et al. (2014)	Denmark	*Bonus for postponing their retirement age* (policy level, physicians-GPs)	Older GPs can receive a bonus for postponing their retirement age. In Southern Denmark, GPs aged from 63 can receive between DKK 320,000 (€43,000) and DKK 1,080,000 (€145000), depending on the age of the GP, the size of the list of patients and the duration of the commitment. In Northern Jutland, GPs receive DKK 55,000 (€7,400) per quarter between the age of 62 and 65.	NM
Lai et al. (2013)	Estonia	*Increase in salaries* (policy level, health professionals)	Due to the economic recession, the health care budget in Estonia has not increased since 2008. This has constrained the capacity of health institutions to invest in facilities or technologies, particularly because priority has been given to salary increases in order to retain health professionals.	Mixed effect/results - Due to the economic recession, the health care budget in Estonia has not increased since 2008. This has constrained the capacity of health institutions to invest in facilities or technologies, particularly because priority has been given to salary increases in order to retain health professionals.
Buchan & Black (2011)	Finland	Negotiations for a new collective agreement (policy level, nurses)	Despite the reforms in the healthcare sector, there was reported dissatisfaction with the nursing salaries in Finland (Flinkman et al., 2008), which came to a head in late 2007. This resulted in negotiations for a new collective agreement. Tehy rejected the municipal employers' pay increase offer of 12%, instead demanding a 24% increase in pay over the period of the contract to compensate for what they	Positive effect/results - The nursing wage agreement in Finland covering the period to the end of 2010 was accompanied by an increase in both the number of nurses employed as well as the number of applications to nursing education programmes. A new agreement in 2011 will mean that all municipality employees, including nurses, will receive a 1.2% pay rise plus an additional amount of

			deemed to be a discrepancy in the fairness of pay equity – physicians received a higher salary increase of 16.6% after a strike in the early part of the decade. Tehy threatened the mass resignation of 13,000 nurses in November 2007 if negotiations failed. Negotiations were concluded on November 18, 2007 when Tehy signed a new two-year collective agreement on nurses' pay with the Commission for Local Authority Employers. Conditions of the agreement for Tehy members included a number of pay increases amounting to a significant rise in pay over the duration of the contract (Tehy reported this rise as approximately 22-28%, while the Local Government Employers estimate it to be 16-18%). The majority of the increase occurred during the first year. The pay changes were comprised of increases in the basic salary and a bonus. Of the total pay raise, increases in basic salary included the following: • Raise in monthly wages of 200 € for manager positions, 100 € for supervisor positions, and 75 € for "demanding nursing positions" on January 1st 2008; • 4% increase in salaries and personal bonuses on February 1st 2008; • 0.5% increase in salaries on May 1st 2009; • 1.3% increase in salaries for certain, educated employee groups with female majority, whose salary levels were at too low a level in comparison to their demanding jobs, on January 1st 2010; • Monthly increase of 60 € for manager positions, 40 € for supervisory positions, and 30 € for demanding nursing positions, also on January 1st 2010. The pay raise also included a bonus as well as general increases that applied not only to social care and healthcare personnel, but also to all municipal employees. Articles 5 and 6 in the agreement (valid until December 2011)	approximately 0.8% to be negotiated locally.

			provided for additional payments that were not to be paid to all nurses. Article 5 enabled payment for results; individual municipalities were able to create goals or measures and if those were reached, the municipality would receive an increase of 0.7% paid as local arrangement fee, starting from September 1, 2010. Article 6 made provision for a local arrangement fee of 2% to be paid in municipalities where the total number of employees in social care and healthcare had remained unchanged or decreased since 2006. If the total amount of employees increased by no more than 1,300 per year, a fee of 1% was to be paid. Table 2 summarises the average pay of nurses in Finland and pay changes across the period 2005 to 2010.	
Chevreul et al. (2010)	France	*Contrat réciprosanté and Contrat d'engagement de service public* (policy level, health professionals-students)	Such as Burgundy, reimburse a percentage of accommodation and travel expenses of medical students as an incentive to set up in understaffed areas. During their third cycle studies, students can receive up to €24,000, on condition that they undertake to practice for a period of up to 6 years in a region with a deficit of healthcare professionals. Since 2005, Burgundy's Regional Council has been inviting nurses, physiotherapists and midwives to sign a bonding contract ("contrat réciprosanté"), at the time of their studies, which comes with an allowance and requires a commitment to work for between one and three years in the region when they finish their training.	Mixed effect/results - Although regional disparities have been reduced over the past 30 years, policies intended to influence the regional numbers of medical students have not always had the expected results. In fact, only 69% of doctors practise in the region where they did their training, and many specialists find internships in regions where there are fewer doctors and then return to their region of origin to practice.
World Health Organization Regional Office for Europe (2011b)	France	*Incentives or allowances for geographical areas in need* (policy level, physicians and nurses)	For instance, wages for hospital doctors will possibly increase in contexts where there is a high need for their specialties, and contracts with medical students and self-employed health professionals with financial incentives to practise in under-served areas will be implemented on a voluntary basis. Create incentives for young professionals to work in under-served areas. A number of	Mix effect/results - Introducing restrictions on the areas in which medical professionals can set up is being considered because the introduction of financial incentives to work in a particular region has not succeeded in ensuring a better distribution of physicians across France - and so inequalities in terms of access to medical care remain. The impact that the 20% increase in the cost of

			pilot projects using positive financial incentives to work in under-served areas have been conducted during the past few years, with limited success (for example, the 2006 national demographic plan for health professionals, see Section 7.1.4). Recently, the 2009 Hospital, Patients, Health and Territories Act (HPST Act) introduced financial incentives for attracting doctors in under-served areas (see Sections 4.2 and 5.2.3). Financial as well as non-financial incentives (for example, professional building amenities, personal housing) in addition, a number of programmes have been developed locally //). The implementation of the agreement commenced in September 2008 on an experimental basis; it includes a 10% overall pay rise, financial and material incentives for nurses to settle in under-served areas and prohibition of settlement in over-served areas unless a retiring or leaving nurse is replaced (see also Section 7.1.4) (HSIT 2010). For practitioners who are in the process of setting up, the government's aim is to attract them to regions in which there is a deficit of healthcare professionals, or to get them to remain in post. The various incentive schemes that have been set up in order to do this are implemented by the State, institutional partners (the healthcare insurance system and other healthcare professionals) or the regional authorities. Some of these are financial incentive schemes, aimed mainly at physicians. These can take the form of tax exemption schemes. Healthcare professionals can also take advantage of tax exemption schemes if they set up a practice in a community of fewer than 2000 inhabitants or in a rural regeneration area. They can receive the gains from this exemption scheme during	consultations with physicians who are part of a practice introduced in 2006 has not yet been gauged (MOHPROF) // Preliminary evaluations suggest that financial incentives alone are less effective than measures including organizational changes aimed at increasing satisfaction at work (Bourgueil et al. 2006 in HSIT 2010). // Domestic programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact, but no lasting effect in the medium to long term (Bourgueil et al., 2006) possibly because wage payments alone cannot compensate for lack of facilities and for lack of access to good education for doctors' and nurses' families. Similar issues arise in middle income countries, notably South Africa. It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006).// General: Literature reviews on nursing supply found only a weak positive relationship between wage and labour supply (Shield, 2004; Chiha and Link, 2003; and Antonazzo et al., 2003). However, there is some evidence that wage is one underlying reason for leaving the profession (Hasselhorn et al., 2005 in OECD 2008 Looming Crisis). // Rechel, Dubois et al., 2006: Efforts to even out the geographical distribution of physicians have been successful over the past few years. There is still, however, a large difference in the availability of physicians, particularly of specialists, between Paris and the southern regions (highest density) and the north of the country (lowest density). // However, focusing specifically on "medically under-served areas" limits the impact of these measures, since very few areas are

			the course of the year which immediately follows their setting up for a period of between two and five years. Surgeries set up in urban regeneration zones, sensitive urban zones and urban free zones can also take advantage of this measure for a period of up to 5 years. Healthcare professionals can also be exempt from having to pay social security contributions under certain conditions when they take on an employee in a rural regeneration area (partial exemption from employer's contributions for a period of 12 months). There are a number of other schemes, mainly available through regional authorities: grants are available to help practitioners settle in to the region; professional premises or accommodation can also be provided; and there are schemes which reimburse investment or operating costs. The state healthcare insurance system pays physicians who practise as part of a group in areas suffering from a shortage of medical practitioners and who have committed to remaining in post for a minimum period of three years 20% extra on their fees. There are special dispensations in place from having to respect the conventional care delivery system so that patients who consult physicians who have recently set up in areas suffering from a shortage of practitioners are not penalised for failing to respect the attending physician's regulations. These dispensations are granted for a period of five years to any physician who sets up in an area which is suffering from a shortage of medical practitioners. (MOHPROF) // HSIT online: from 2013 onwards, ARS directors can offer physicians who work in medically over-served areas a health and solidarity contract (contrat santé solidarité) in which they would agree to participate in health care	concerned (the areas concerned represent about 2.6 million inhabitants or 4% of the total population and 1600 GPs or 3% of all GPs). Moreover, the plan used mainly financial incentives to encourage doctors to move to mostly rural areas, the effectiveness of which when weighed against doctors' preferences in lifestyle is questionable (see Section 5.1.3). This policy is mainly focused on medical doctors but there are also problems in the geographical distribution of nurses and some areas face relative shortages in their number (see Section 5.2.4).

			delivery in under-served areas in exchange for an allowance. The Act states that those refusing the solidarity contract or not fulfilling the contract terms will have to pay a lump sum fine to SHI. However, this financial incentive was dropped in June 2010 by the Minister of Health (see Section 7.1.3).	
Ono et al. (2014)	France	*Contracts with group practices*	The Ministry of Health has introduced multi-professional infrastructures called "*Maisons de santé multidisciplinaires*" in 2007. There were 174 in 2012, 370 in 2013, and 600 planned in 2014; 80% are in rural areas.	Positive effect/results - Working conditions, such as number of hours worked, are better than for single practitioners, an incentive that attracts physicians, nurses and other health professionals.
Ono et al. (2014)	Germany	*Contracts with group practices* (policy level, physicians)	Community health centers were established in 2004 to improve working conditions of physicians by reducing their workload, improving interaction with other specialties and giving access to higher earnings through resource-sharing.	Positive effect/results - In 2011, there were 1 750 community health centers; 14.6% were located in rural areas and these are considered to hold potential for further expansion in rural areas because the advantages of establishing or joining such a center are more pronounced there than in urban areas, in terms of less heavy workload and better income.
Ono et al. (2014)	Germany	*Non-wage-related payments (one-off payment)* (policy level, physicians-GPs)	11 out of 16 federal states (*Länder*) offer financial incentives to GPs opening their practice for the first time, in designated shortage areas. GPs can receive a one-time payment ranging from €15,000 to €60 000 depending on the state, the degree of shortage, the size of the municipality and the type of services the physician provides. Sources of financing differ across *Länder.* Costs are either shared between the state government, the association of statutory health insurance physicians and insurance companies or borne entirely by one of these stakeholders. In some states, such as Mecklenburg- Western Pomerania, North Rhine-Westphalia and Lower Saxony, the one-time payment of practice opening comes with a return-of-service obligation of five to ten years. In the state of Thuringia, GPs aged 65 and above can apply to receive €1,500 per quarter in addition to their	NM

			normal revenues for continuing to work in underserved or at risk of being underserved rural areas.	
World Health Organization Regional Office for Europe (2011b)	Greece	*Special allowances were paid* (policy level, health professionals)	NM	NM
Economou (2010)	Greece	*The hiring of medical, nursing and administrative personnel to fill all the vacancies in public hospitals* (policy level, physicians and nurses)	Combined with the establishment of special incentives for specialties that face shortages of doctors, including general practice, public health, occupational medicine and emergency medicine as part of the reform of 2000-2002.	Negative effect/results - These measures were clearly defined, moved in the right direction and constituted a significant change to the existing situation. However, they were never implemented. // Greece faces major geographic imbalances in the supply of doctors. No successful policies have been adopted to attract and retain physicians in rural areas; and despite financial incentives these have not been enough to rectify the situation. Today, most physicians are located in metropolitan areas, leading to major inequalities in the provision of health services.
Gaál (2004)	Hungary	*Increase the salary of health workers and other public employees and introduction of a loyalty bonus* (policy level, health professionals)	One of the first measures of the current government, however, was to increase the salary of health workers and other public employees by an average of 50% (2002/15). This is by far the most substantial pay rise the health sector has seen in the new era. In addition, the government introduced a compulsory minimum wage for employees with higher educational qualifications (twice the minimum wage). It also offered a "loyalty bonus" (equal to one year's salary) for nurses and other qualified non-medical health professionals who have been working at least for four years in the health sector.	Effectiveness of intervention was not mentioned.
International Council of Nurses (2013) Friðfinnsdóttir & Jónsson (2010)	Iceland	Increase in salaries (organizational level, nurses)	A new contract struck between Landspítali National University and Iceland's nurses union includes salary increases of between 5 and 9.6 per cent, depending on education and work experience, according to reports in Iceland Review Online. A special workload payment, retroactive for two months, is also included in the deal. Almost 300 nurses had	Effectiveness of intervention was not mentioned.

			resigned in the lead up to the agreement, with resignations to take effect March 2013. Those nurses had until midnight on the day after the deal was struck to withdraw their resignations, in order to qualify for the workload payment. Chair of the Nurses Union and ICN Board member, Elsa B. Friðfinnsdóttir, also noted in an interview that the deal includes a provision on further steps towards equal rights to salaries and better wages for nurses. The Minister of Welfare has also stated that the contract is the first step towards addressing gender-based pay gaps.	
World Health Organization Regional Office for Europe (2011b)	Lithuania	*Attract health care workers to rural areas through financial incentives* (policy level, health professionals)	General practitioners, pediatricians, gynecologists, surgeons and psychiatrists who work in rural areas are paid an additional allowance of €27 per month.	Negative effect/results - The financial incentives have been too low to result in substantial changes in the regional distribution of nurses.
Rechel et al. (2006)	Lithuania	*Increase in salaries* (policy level, health professionals)	Since 1996, wages in the health sector have increased more than the national average.	Effectiveness of intervention was not mentioned.
Rechel et al. (2006)	Malta	*For working nurses, a series of incentives were introduced, including a marked increase in salary and status* (policy level, nurses)	For working nurses, a series of incentives were introduced, including a marked increase in salary and status. For the past few years, the Health Division of the Ministry of Health has had a workforce plan. The plan provided young health care professionals with useful information on the planned growth in specialist areas. One of the most successful strategies in redressing imbalances in the workforce supply was pursued in the late 1980s and early 1990s, aiming to overcome a severe nursing shortage. The strategy tried to attract students to nursing, retain nurses in employment, and entice female nurses back to the profession. Nursing education was upgraded to courses leading to a certificate, diploma or bachelor's degree. For working nurses, a series of incentives were introduced, including a marked increase in	Positive effect/results - One of the most successful strategies in redressing imbalances in the workforce supply.

			salary and status. A 60-bed geriatric rehabilitation hospital was entirely staffed by nurses returning to work, who were attracted by retraining courses, flexible working hours and a child care centre. As part of the planning process for a new general hospital, it is envisaged that a comprehensive workforce plan for the whole health sector be set up.	
Rechel et al. (2006)	Norway	Increase in salaries (policy level, not specified)	As the shortage of physicians increased in the 1990s, it became common for physicians working in hospitals to work in excess of the normal 37.5 hours per week. As compensation, in the second half of the 1990s they received large salary increases, mostly relating to overtime and night shifts. In conjunction with the hospital reform of 2002, the basic salary was increased and payments for extra activities reduced.	NM
Kołodziejska et al. (2012)	Poland	Delegation of tasks: introduction of medical carers (policy level, nurses)	The Ministry of Health introduced in 2007 the education of medical carers, which should help the sick and dependent people with satisfying basic biological needs, in keeping social activity and solving patient's sanitarian problems. The profession should in fact relieve the nurses employed in Polish hospitals and could limit their emigration55. It should be however mentioned that the previous experiences show that hospital directors have not had enough resources to employ the medical carers and in fact overload of nurses remains the same.	Negative effects: previous experiences show that hospital directors have not had enough resources to employ the medical carers and in fact overload of nurses remains the same
World Health Organization Regional Office for Europe (2011b)	Romania	*Financial incentives for GPs working in rural areas* (policy level, physicians-GPs in rural areas)	NA	Effectiveness of intervention was not mentioned.
Rechel et al. (2006)	Spain	*Doctors can earn a supplementary allowance if they agree to work exclusively in the public sector. In some regions, additional allowances are allocated for primary care specialists working in remote rural areas* (policy level, physicians)	A fixed salary is determined by the central government, while a variable pay scheme is determined by the regional health services. In all regions except Catalonia, doctors can earn a supplementary allowance if they agree to work exclusively in the public sector, amounting on average to 25% of the	Negative effect/results - Efforts to keep doctors in the public sector on a full-time basis have not been successful. For primary care specialists, salaries remain below the salaries of specialists working in hospitals.

			fixed salary. The Law for Health Professions of 2003 introduced a new supplementary allowance based on the professional level achieved. There is a considerable disparity in gross earnings across regions. In 2002, a hospital specialist in Catalonia received €45 037, while the salary in Navarra was €52 990.	
World Health Organization Regional Office for Europe (2011b)	Spain	*Special allowances were paid* (policy level, health professionals)	NM	NM
World Health Organization Regional Office for Europe (2011b)	Sweden	*Special allowances were paid* (policy level, health professionals)	NM	NM
OECD (2008)	United Kingdom	*Increase reimbursement* (policy level, physicians-medical specialists)	NM	Mix effect/results - Pay increases for doctors in the United Kingdom, implemented as part of a new contract for hospital consultants in 2003, seem to have increased consultant numbers (Buchan, 2008). But they also led to significant cost increase (NAO, 2007). Domestic programmes offering higher remuneration for doctors and nurses locating or moving to underserved, deprived, or rural areas tend to have a short-term impact, but no lasting effect in the medium to long term (Bourgueil et al., 2006) possibly because wage payments alone cannot compensate for lack of facilities and for lack of access to good education for doctors' and nurses' families. Similar issues arise in middle income countries, notably South Africa. It is also unclear whether pay-related policies are more or less costly than other educational or regulatory approaches (Simoens and Hurst, 2006). General: Literature reviews on nursing supply found only a weak positive relationship between wage and labour supply (Shield, 2004; Chiha and Link, 2003; and Antonazzo et al., 2003). However, there is some evidence that wage is one

				underlying reason for leaving the profession (Hasselhorn et al., 2005 in OECD 2008 Looming Crisis). By sharply raising the salaries of consultants and general practitioners, recruitment and retention are likely to be enhanced, with the United Kingdom becoming even more attractive to doctors from abroad. However, the effects of these contracts on activity and outcomes are still unclear. One of the problems with the new general practice contract is that what is not listed in the quality targets may be marginalized.
Buchan & Black (2011)	United Kingdom	Agenda for Change: Modernising the NHS Pay System (policy level, nurses)	The proposals emphasized that the new system was designed to: • Enable staff to give their best for patients, working in new ways and breaking down traditional barriers; • Pay fairly and equitably for work done, with career progression based on responsibility, competence and satisfactory performance; • Simplify and modernise conditions of service, with national core conditions and considerable local flexibility (Department of Health, 1999). After several years of negotiation and development, implementation began with a piloting process in "early implementer" sites, followed by a full national roll-out from December 1st 2004. By the end of 2006, more than 99% of NHS staff were on Agenda for Change pay arrangements (Review Body, 2006). Pay Intervention - There were three key components in the new pay system which differentiated it from the system it replaced: simplified national pay "spines" covering different staff groups; the use of agreed job descriptions and job evaluation to "price" jobs on the pay spine; and the introduction of the Knowledge and Skills Framework (KSF) – a new career development framework (NHS Employers, 2006; Buchan and Evans, 2007; National Audit Office, 2009). Agenda for Change	Mixed effect/results - The results reported here have demonstrated that there was some positive change, overall, for UK nursing labour markets after implementation of Agenda for Change in 2006, but that the process of implementation itself raised expectations that were not fully met for all NHS nurses. There were also clear signs of differential impact and experiences, with some categories of nurse being less satisfied with the process of implementation. The clear message is that the potential benefits of a new pay system in a national service can only be maximised by effective communication, adequate funding and consistent management.

Reference (Author, year)	Country	Intervention (Level, Target Profession)	Additional information of the intervention	Comments on results
			introduced a single new pay spine for all NHS nurses and other health professionals (other than physicians, who were not covered by the new system). This replaced a multiplicity of occupational pay grades, pay points and salary scales that had characterized the previous NHS pay system, where each profession had multiple pay grades and there were a range of occupation and profession-specific additional allowances. Agenda for Change also incorporated (or "bought out") many of these supplementary payments and additional allowances paid under the previous system in order to simplify ("harmonise") the new pay system (NHS Employers, 2006; Buchan and Evans, 2007). The Agenda for Change pay system was underpinned by a job evaluation scheme, which was based on 16 factors and was a "tailor-made" system for NHS staff. The job evaluation process depended upon agreed job descriptions for different types of job and role. In part, the use of a single job evaluation scheme was intended to support "equal pay for work of equal value". The new pay spine was divided into nine pay bands, and staff covered by Agenda for Change were assimilated to one of these pay bands on the basis of job weight, as measured by the NHS job evaluation scheme (Buchan and Evans, 2007; National Audit Office, 2009). In summary, the new pay system set out to provide a simplified approach to pay determination for nurses and other NHS staff, with a more systematic use of agreed job descriptions and job evaluation to "price" individual jobs within the workforce, linked to a new career development framework.	

EU Countries / EEA-EFTA Countries				
3- Professional and Personal Support Interventions				
WHO (2011)	Austria	M-Health (organizational level, health professionals in rural areas)	Melanoma screening with mobile telephones, sending the images to specialists for diagnosis.	General: The impact of mHealth projects Formal studies and preliminary project assessments – in both developed and developing countries – demonstrate that mHealth technologies improve the efficiency of health-care delivery and, ultimately, make it more effective. The long- term goal and expectation is that mHealth programmes will have a demonstrable and significant positive impact on clinical outcomes, with a particular focus on primary health care (15).
OECD (2008). Gerkens, S., & Merkur, S. (2010)	Belgium	*Package of interventions: end-of-career and other measures to improve the workload, status, organization and quality of the work, the balance between professional and private life, and remuneration* (policy level, mid-life working nurses)	To increase the attractiveness of the health care professions, social agreements have been concluded including: end-of-career and other measures to improve the workload, status, organization and quality of the work, the balance between professional and private life, and remuneration. Part-time work for nurses aged > 55 (HSIT 2010: > 45) while preserving full time salary. Since 2000, concrete measures to improve the perception of the nursing profession were put into place. In addition, nurses aged 45 years or older who were active in the health care sector (in hospitals, residential care for the elderly or for disabled individuals) could reduce the number of hours worked per week without any salary penalty (or work full-time and obtain a salary bonus). In 2008, an attraction plan was proposed, based on four specific actions (reducing work load; improving qualifications; improving salaries; and better social recognition) (AFIU 2008) (see Chapter 6). For nurse-aids the biggest change with respect to their profession occurred with the recognition based on registration and the creation of a legal context allowing them to perform certain nursing acts.	Positive effect/results - A number of hospitals have experienced better nurse retention.

World Health Organization Regional Office for Europe (2011b)	Bulgaria	Improved access for nurses to medical universities, to encourage more nurses to pursue professional training (policy level, nurses)	NA	Effectiveness of intervention was not mentioned.
World Health Organization Regional Office for Europe (2011b)	Bulgaria	Raise the profile of GPs (policy level, physicians-GPs)	Establishment of chairs in the discipline of family medicine at the main medical university	Effectiveness of intervention was not mentioned.
Sermeus, W., & Bruyneel, L. (2010)	Czech Republic	*Support for nurses returning from maternity leave: providing workplace nurseries* (policy level, nurses)	NM	Positive effect/results - The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.
Sermeus & Bruyneel (2010)	Czech Republic	*Subsidize education for nurse specialists* (policy level, nurses)	NM	Positive effect/results - The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.
Sermeus & Bruyneel (2010)	Czech Republic	*CPD: enhance system by introducing a system of credits/points* (policy level, nurses)	NM	Positive effect/results - The positive effect of the combined stabilization measures was that the nursing shortage reduced from a shortage of 1090 nurses in 2008 to one of 570 in 2009. Not surprisingly the introduction of benefits for nurses was followed by similar demands from other professional groups.
Buchan, J. and S. Black (2011)	Czech Republic	"Stabilisation Measures" (policy level, nurses and midwives)	In addition to the salary increase, other "stabilisation measures" to address the shortage were implemented in 2009; for example, improvement in working conditions, setting up day-care with flexible hours for employees' children, subsidising the costs of additional specialisation education, and changing and improving conditions for continuous professional development.	Positive effect/results - The improvement in pay and conditions of Czech nurses working for government hospitals in 2009 occurred at the same time as reductions in vacancies, an increase in overall staffing numbers and an increase in intakes to nurse training. While it is likely that the two issues are connected, causality cannot be demonstrated with available data sets, and broader economic changes may also have been a factor in these changes.

Olejaz et al. (2012)	Denmark	Increasing recognition of general practice as a formalized specialty with growing scientific activity (policy level, not specified)	Recruitment of young doctors into general practice has been supported by an increasing recognition of general practice as a formalized specialty with growing scientific activity, improved social and professional environments (with group practices) and an advantageous income compared with hospital doctors.	Effectiveness of intervention was not mentioned.
Fujisawa & Colombo (2009)	Denmark	CPD and career progression: Flexible training arrangements. Training is counted towards seniority in career-advancement decisions (Jensen and Hansen, 2002) (unknown level, not specified)	Training in modules, allowing LTC workers to move easily between work and training. Training is counted towards seniority in career-advancement decisions (Jensen and Hansen, 2002)	Effectiveness of intervention was not mentioned.
Jesse, M., Habicht, J., Aaviksoo, A. et al (2004)	Estonia	Raise the status of nurses (policy level, nurses)	Some efforts have been made to raise the status of nurses by increasing their responsibilities and introducing continuing education to the profession. The new Health Services Organization Act gives nursing care a legally well-defined status on a par with primary, specialist and emergency care. In hospitals, nurses and nursing are increasingly being acknowledged independently, by doctors as well as by patients.	Positive effect/results - In hospitals, nurses and nursing are increasingly being acknowledged independently, by doctors as well as by patients.
Jesse, M., Habicht, J., Aaviksoo, A. et al (2004)	Estonia	Increasing recognition of general practice as a specialty (policy level, physicians-GPs)	At the end of 2001, Estonia had 33 recognized medical and 2 recognized dental specialties, down from a total of 42. Family medicine was first recognized as a specialty in 1993. Qualifying as a specialist involves a three-to-five-year residency programme. One element of health care reform has been to draw up development plans for each specialty that define the content of its residency programme. All previously or internationally obtained qualifications are adapted to fit one of the official specialties when doctors register with the National Registry of Doctors held by the Health Care Board. Professional subspecialization is permitted once a doctor has qualified in one of the main	NM

			specialties, but it is not formally recognized, and such training is neither regulated administratively nor funded publicly.	
OECD (2008)	France	Exemption elderly doctors from night and weekend shifts for elderly doctors (policy level, elderly physicians)	Doctors who reach the statutory pensionable age can combine a pension and earnings up to an income limit. Also, elderly doctors can be exempted from night and week-end shifts	Effectiveness of intervention was not mentioned.
OECD (2010)	Germany	Telehealth project (organizational level, physicians-GPs)	In Germany, the AGnES community medicine nurses programme provides support to GPs in rural areas. The programme aims to reduce the time GPs spend commuting for home visits for routine procedures and involves the use of an electronic "tablet" that the community medicine nurses use to send patients' health information in real time to the GP and, if necessary, have a video conference. The nurses operate under the guidance of a GP and receive training in the operational procedures of GP practice, treatment for chronic diseases and use of e-health equipment.	Effectiveness of intervention was not mentioned.
Buchan, J. (2009). Nursing Human Resources in Ireland - Case Study. Geneva: International Centre for Human Resources in Nursing.	Ireland	Working time: improving flexibility (policy level, nurses and midwifes)	The Nursing and Midwifery Recruitment and Retention Initiative. Among the interventions was a move towards more flexible working arrangements for nurses and midwives, enabling them to work on a permanent part-time basis. // Different arrangement opportunities have been available, including the possiblity of working overtime which serves as an important pull and stick/ stay factor. Additionally, public sector offers good annual leave arrangements and a relatively good maternity leave cover.	Mixed effect/results - However, the study of job satisfaction among nurses in Ireland shows low-to-moderate job satisfaction levels. Among the developments that have had a positive influence on job satisfaction of health professionals are flexible work arrangements, development and training opportunities as well as the support structure for staff use. A study conducted among the nurses who decided to resign from their job within the HSE indicated that 1 in 5 respondents claimed that the main reason for leaving the employment was a lack of promotional and professional training opportunities.
Buchan, J. (2009). Nursing Human Resources in Ireland - Case Study. Geneva: International Centre for Human Resources in	Ireland	Back-to-nursing courses, free of charge (unknown level, nurses and midwifes)	Combined with a bonding scheme: salary during training in return for commitment to rejoin the public health service upon completion of the course. The Irish Nurses Organisation commissioned a survey of non-	Positive effect/results - Reportedly with some success.

Nursing. WHO (2010). The world health report : health systems financing : the path to universal coverage. Geneva: WHO.			practising nurses in Ireland to assess potential "re-turnees" and to evaluate the likely effectiveness of vari-ous strategies to encourage them to return to the health workforce. The results suggest that flexible working hours and increased pay could help bring these nurses back to work (54). 54. Egan M, Moynihan M. An examination of non practising qualified nurses and midwives in the Republic of Ireland and an assessment of their intentions and willingness to return to practice. Dublin, Irish Nurses Organisation/Michael Smurfit Business School, 2003.	
Rechel, B., Dubois, C. and McKee, M. (eds.) (2006). The Health Care Workforce in Europe Learning from experience. Geneva: World Health Organization, on behalf of the European Observatory on Health Systems and Policies.	Malta	Improve representation of women at senior clinical and management levels (unknown level, not specified)	A project supported by the European Social Fund.	Effectiveness of intervention was not mentioned.
Rechel, B., Dubois, C. and McKee, M. (eds.) (2006)	Malta	Family-friendly practices: flexible working hours and a child care centre (policy level, nurses)	For the past few years, the Health Division of the Ministry of Health has had a workforce plan. The plan provided young health care professionals with useful information on the planned growth in specialist areas. One of the most successful strategies in redressing imbalances in the workforce supply was pursued in the late 1980s and early 1990s, aiming to overcome a severe nursing shortage. The strategy tried to attract students to nursing, retain nurses in employment, and entice female nurses back to the profession. Nursing education was upgraded to courses leading to a certificate, diploma or bachelor's degree. For working nurses, a series of incentives were introduced, including a marked increase in salary and status. A 60-bed geriatric rehabilitation hospital was	Positive effects/results - One of the most successful strategies in redressing imbalances in the workforce supply.

			entirely staffed by nurses returning to work, who were attracted by retraining courses, flexible working hours and a child care centre. As part of the planning process for a new general hospital, it is envisaged that a comprehensive workforce plan for the whole health sector be set up.	
World Health Organization Regional Office for Europe (2011b). Technical Meeting on Health Workforce Retention in Countries of the South-eastern Europe Health Network (p. 26).	Romania	Housing and other personal support (varying by locality) (organizational level, not specified)	NA	Effectiveness of intervention was not mentioned.
World Health Organization Regional Office for Europe (2011b)	Romania	Raise the profile of GPs (policy level, physicians-GPs)	Establishment of chairs in the discipline of family medicine at the main medical university. Expansion of general practitioners' scope of activity and given them more responsibilities in primary care, including the monitoring of diabetes patients.	Effectiveness of intervention was not mentioned.
World Health Organization Regional Office for Europe (2011b)	Romania	CPD: distance learning (organizational level, physicians and nurses)	Romania developed distance-learning modules in emergency care to train physicians and nurses working in ambulance services and hospital emergency departments. Romania developed distance-learning modules in emergency care to train physicians and nurses working in ambulance services and hospital emergency departments. There are indications that the modules have led to improved use of equipment and better patient care, suggesting the potential benefits of offering distance education to health workers in rural and remote areas.	Positive effect mentioned: Romania developed distance-learning modules in emergency care to train physicians and nurses working in ambulance services and hospital emergency departments. There are indications that the modules have led to improved use of equipment and better patient care, suggesting the potential benefits of offering distance education to health workers in rural and remote areas
World Health Organization Regional Office for Europe (2011b)	Slovenia	Housing support (varying by locality) (organizational level, not specified)	NA	Effectiveness of intervention was not mentioned.
Rechel, B., Dubois, C. and McKee, M. (eds.) (2006)	Spain	Career opportunities (policy level, physicians and nurses)	The Law for Health Professions, passed in December 2003, was the first general regulation on human resources in the health sector to be established in recent decades.	Negative effect/results - Failed to change the status quo significantly.

			The law regulated the career path of physicians and nurses and introduced some significant changes in salary matters.	
Svensson, P., Gustafsson, M. and Kaplan, D. (2011)	Sweden	CPD: spend time on research (organizational level, physicians)	NM	Effectiveness of intervention was not mentioned.
OECD (2008)	United Kingdom	CPD: offer wider range of options (policy level, physicians and nurses)	Flexibility is an important factor, especially given the growing feminisation of the medical workforce (Figure 1.6 above). Young and Leese (1999) identified improving workingtime flexibility, creating more flexible career development opportunities, and offering a wider range of options for continued education as the main instruments to improve medical retention in the United Kingdom.	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.
OECD (2008)	United Kingdom	Working time: improving flexibility (policy level, physicians and nurses)	Authors link importance of flexibility to growing feminization of the workforce. HSIT 2011: • Improving Working Lives (IWL) The NHS Plan stated that all NHS employers would be assessed against performance targets including the "Improving Working Lives Standard", and that by April 2003 NHS organisations would be expected to be accredited for putting the Standard into practice. The standard included measures of availability of flexible working; access to continuing education etc. The IWL Standard made it clear that "every member of staff in the NHS is entitled to work in an organisation that can demonstrate its commitment to more flexible working conditions that gives staff more control over their own time". The Standard also required NHS employers to prove that they were investing in improving diversity and tackling discrimination and harassment.	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.
OECD (2008)	United Kingdom	Career development: increase flexibility in career development opportunities (policy level, physicians and nurses)	NM	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the

				short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.
Bryar et al. (2012)	United Kingdom	Childcare support / on-site nursery facilities (policy level, PHC nurses)	The National Health Service Plan in the UK was intended to make the NHS an exemplary employer by formulating policies which provide childcare support, flexi-time, opportunities for lifelong learning for employees and a zero tolerance on violence against staff. The policy also provides for a workplace that is free from infections. Provision of such policy direction is important because the safety of PHC nurses, especially in remote areas, is often compromised by poor infrastructure, inadequate supplies, violent communities and poor management strategies. // The development of a Childcare Strategy for the NHS2 also played a role in the recruitment and retention of staff. More on-site nurseries were built to offer extra childcare cover. Other care initiatives are also being developed to meet the needs of staff with older children.// • Improving Working Lives (IWL) The NHS Plan stated that all NHS employers would be assessed against performance targets including the "Improving Working Lives Standard", and that by April 2003 NHS organisations would be expected to be accredited for putting the Standard into practice. The standard included measures of availability of flexible working; access to continuing education etc. The IWL Standard made it clear that "every member of staff in the NHS is entitled to work in an organisation that can demonstrate its commitment to more flexible working conditions that gives staff more control over their own time". The Standard also required NHS employers to	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.

			prove that they were investing in improving diversity and tackling discrimination and harassment (HSIT 2011).	
Bryar, R., Kendall, S., & Mogotlane, S. M. (2012) WHO (2010)	United Kingdom	Zero tolerance on violence against staff (policy level, PHC nurses)	The Zero Tolerance campaign against violence began in 1998 and was mainly advertised through a series of high-profile launches. Following its introduction, a survey of 45 NHS trusts revealed that the most common measures imple-mented were: closed circuit television surveillance (77%), controlled access to certain areas (73%), security guards (73%), better lighting (68%), improved signposting, (68%), improvements in space and layout (62%) and in decoration of public areas (47%), provision of smoking areas (42%) and private rooms (33%), improved cleanliness (31%), and regu-lation of noise (28%) and temperature (15%). Some of the changes have not been made specifically in relation to re-duction of workplace violence, but as overall improvements in the institutions (52). 52. Wiskow C. Guidelines on workplace violence in the health sector – Comparison of major known national guidelines and strategies: United Kingdom, Australia, Sweden, USA. Geneva, ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector (forthcoming working paper) The National Health Service Plan in the UK was intended to make the NHS an exemplary employer by formulating policies which provide childcare support, flexi-time, opportunities for lifelong learning for employees and a zero tolerance on violence against staff. The policy also provides for a workplace that is free from infections. Provision of such policy direction is important because the safety of PHC nurses, especially in remote areas, is often compromised by poor infrastructure,	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.

			inadequate supplies, violent communities and poor management strategies. // HSIT 2011: • Improving Working Lives (IWL) The NHS Plan stated that all NHS employers would be assessed against performance targets including the "Improving Working Lives Standard", and that by April 2003 NHS organisations would be expected to be accredited for putting the Standard into practice. The standard included measures of availability of flexible working; access to continuing education etc. The IWL Standard made it clear that "every member of staff in the NHS is entitled to work in an organisation that can demonstrate its commitment to more flexible working conditions that gives staff more control over their own time". The Standard also required NHS employers to prove that they were investing in improving diversity and tackling discrimination and harassment.	
OECD (2008)	United Kingdom	Part-time work for staff near retirement while preserving pension entitlements (policy level, not specified)	More flexible working patterns that allow health professionals who have reached pensionable age to continue to work and receive pension benefits may encourage them to delay retirement. In the United Kingdom, a flexible-retirement initiative launched in 2000 enabled staff nearing retirement to move into part-time work while preserving pension entitlements (Simoens and Hurst, 2006).	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.
OECD (2008) Rechel et al. (2006)	United Kingdom	*Back-to-nursing courses* and Mentoring of nurses returning to work (policy level, nurses)	The National Health Service Plan encouraged the return of qualified nurses by providing back-to-practice courses, improved work-based learning, additional nursery facilities, and mentoring of nurses returning to work (Secretary of State for Health 2000). Encouraging nurses to return to NHS employment has been another key element of NHS policy. In April 2001, a "returner package" was introduced in England, providing free refresher training	Mixed effect/results - Data on returners to England suggest that on average about 3700 nurses, midwives and health visitors have annually returned to work in recent years. // Over the past few years, the annual number of nurses and midwife returnees is estimated around 3 800 or 1% of the total number of qualified nurses and midwives, but there is no indication of any upward trend (Buchan, 2007). Despite the fact that the NHS adopted an ambitious

			and financial support. Similar initiatives were undertaken in the other United Kingdom countries.	mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005. // Although overall nursing numbers have increased, it is less clear whether the growing number of nurses are in the "right" place or have the "right" skills. Headline growth masks significant variations within different NHS nursing specialties and grades. The increase in NHS nursing headcount figures for England between 1999 and 2002 has mainly been among general nurses and nurse managers, while there has been a decrease in the number of district nurses and health visitors
Baumann et al. (2006) OECD (2008)	United Kingdom	Improving Working Lives (IWL) Standard (policy level, Health Professionals)	The government is implementing an Improving Working Lives (IWL) Standard. It is expected that all NHS employers will put the IWL standard into practice. The standard addresses training and development, discrimination and harassment, improving diversity, zero tolerance on violence against staff, reducing workplace accidents, reducing sick absences, providing better occupational health and counseling services, and conducting annual attitude surveys. The government plans to invest: £140 million by 2003/04 in professional development for staff and £9 million to improve the workplace environment. The government also plans to invest £8 million by 2003/04 to extend occupational health services. The IWL also includes more flexible working conditions (e.g., childcare support and employee led rostering). The government will invest £30 million by 2004 for childcare	Mixed effect/results - Despite the fact that the NHS adopted an ambitious mixed strategy to achieve staff growth, including increasing training, improving retention and fostering return to the workforce, in the short run, international recruitment had to be increased significantly to respond to the needs (see Buchan, 2007 and 2008). As a result, foreign-trained doctors employed by the NHS in England increased from about 22 000 in 1997 to almost 39 000 in 2005.

			services for NHS staff.	
Rechel, B., Dubois, C. and McKee, M. (eds.) (2006). The Health Care Workforce in Europe Learning from experience. Geneva: World Health Organization, on behalf of the European Observatory on Health Systems and Policies.	Norway	Career development opportunities (policy level, nurses)	Nursing science is established as an academic discipline, with master's degrees and PhDs. Further education programmes leading to nursing specialist degrees normally require some clinical experience and take one to two years to complete. It is common for students to receive their salaries while attending full-time further education programmes, in exchange for a commitment to continue working for their employer afterwards.	Effectiveness of intervention was not mentioned.
Rechel, B., Dubois, C. and McKee, M. (2006)	Norway	Address professional isolation in rural areas (unknown level, physicians)	Telemedicine department at the University Hospital in Tromsø to assist physicians working in remote rural areas. The Norwegian Centre for Telemedicine had about 110 employees in 2003. In 2002, it was designated as the World Health Organization's first collaborating centre for telemedicine. Another measure used in some municipalities to address the problem of professional isolation is to provide municipal health and care services in the same building. Some places cooperate with nearby hospitals and have visiting specialist physicians.	Effectiveness of intervention was not mentioned.

Reference (Author, year)	**Country**	**Intervention (Level, Target Profession)**	**Additional information of the intervention**	**Comments on results**
EU Countries / EEA-EFTA Countries				
4- Regulation Interventions				
Delamaire & Lafortune (2010)	Belgium	Extension of the use of / advanced roles for nurse (policy level, nurses)	Registered nurses in Belgium can perform advanced tasks in nursing diagnosis and consultation (advanced physiological and psychological assessment) and may refer patients to specialists (Belgium does not have a compulsory general practitioner gatekeeping system for referrals to specialists). They can also be involved in the management of chronic diseases such as asthma, cardiac care,	Effectiveness of intervention was not mentioned.

			stroke (follow up), diabetes, cancer. But these new roles of nurses in chronic disease management have not yet resulted in any formal recognition that they are practising at a higher level. No category of nurses is officially considered as advanced nurses, with the exception perhaps of nurses in "emergency and intensive care" who can perform some advanced tasks without physician prescriptions, such as triage activity to prioritise patients or invasive resuscitation (e.g. intubation).	
Delamaire & Lafortune (2010)	Cyprus	Extension of the use of / advanced roles for nurse (policy level, nurses)	There are at least four categories of advanced practice nurses in Cyprus: 1) diabetic nurses, 2) community mental health nurses, 3) mental health nurses for drug and alcohol addiction, 4) community nurses (including health visitors mainly focused on young children and mothers).	Effectiveness of intervention was not mentioned.
Delamaire & Lafortune (2010)	Czech Republic	Extension of the use of / advanced roles for nurse (policy level, nurses)	The Czech Republic is only just beginning to explore possibilities to develop advanced practice roles for nurses, although nurses may already be playing some advanced roles in the area of chronic diseases and injuries in an unofficial (informal) way. 1. Description of advanced roles of nurses. Advanced nursing practice in the Czech Republic is currently defined as including two categories of nurses: 1) A registered nurse with a specialization (nurse specialist) that has been certified (examination). 2) A nurse with a Master's degree oriented towards a clinical discipline (e.g., Geriatry, Oncology, Cardiology). Nurse specialists are increasingly involved in the management of chronic diseases such as asthma, cardiac care, stroke (follow-up), diabetes, cancer, and chronic kidney failure. On the other hand, nurses are not allowed to prescribe drugs in the Czech Republic.	Effectiveness of intervention was not mentioned.
Delamaire & Lafortune (2010)	Finland	Extension of the use of / advanced roles for nurse (policy level, nurses)	Finland is a country that has a long experience of strong cooperation and task sharing between doctors and nurses in	Effectiveness of intervention was not mentioned.

			primary care centres, even though it has not formally developed categories of "nurse practitioners" as in anglosaxon countries. 1. Description of advanced roles of nurses. There are at least two categories of advanced nurses in Finland: 1) Public health nurses (with advanced diploma or degree); and 2) nurses (with advanced diploma or degree. Public health nurses with post-graduate education are working in advanced roles in health centres in primary health care. While they have traditionally provided maternal and child health counselling, they have recently become more involved in providing services for patients with chronic diseases. Nurses with post-graduate education are also working in advanced roles in primary health care as well as in hospitals. These nurses are involved in the management of chronic diseases such as hypertension, asthma, cardiac care, diabetes and stroke.	
Delamaire & Lafortune (2010)	France	Delegation of clinical activities to advanced practice nurses (policy level, Physicians)	Sharing or transferring tasks from doctors. It is not easy to describe the current status of advanced nursing practices in France as it is an area that is changing rapidly both from a legal standpoint and in terms of practices in the field. The profession remains highly regulated and draws a distinction between the specific role of nurses and acts performed under a medical prescription (Articles R4311-3 to R4311-5 of the French Public Health Code with regard to the role of the nurse, and Articles R4311-7 to R4311-10 for acts performed on prescription). This specific regulation can slow down the development of new roles. French nurses, for example, are not permitted to prescribe drugs, although a 2007 Decree allows them to prescribe medical devices (e.g. intravenous drip systems for home use, accessories for the use of certain catheters) and to perform certain "advanced" tasks	Positive effects mentioned: Delamarie 2010: The ONDPS (French National Observatory on the Demography of Health Professions) and HAS (French "High Authority in Health"), which assessed the initial pilot projects, concluded that: "All the projects presented show that it is possible for non-medical workforce to perform medical acts without danger to patients through a reorganisation of the work process and close collaboration with doctors" (HAS, 2008). With regard more particularly to trial co-operation between general practitioners and advanced practice nurses for the monitoring of diabetic patients in the primary sector, patients monitored by nurses achieved better results than the trial group of patients in which there was no monitoring by nurses. According to the assessors, this model of co-operation is effective. The therapeutic education dispensed by nurses

			compared with other countries (e.g. renewal of certain vaccinations without a medical prescription). Moreover, other more informal advanced practices may exist in the field, as a result of close collaboration between doctors and nurses, which may not always be officially recognised. In France, unlike in other countries, State-qualified nurse anaesthetists, State-qualified operating theatre nurses, and State-qualified paediatric nurses are not considered as advanced practice nurses, but as specialised nurses. In recent years, further to the Berland report (2003) on the co-operation of health professionals. In October 2009, to promote new advanced roles for nurses, a new Master's degree was jointly developed by the University of Aix-Marseille and the National School of Public Health. France has been trialling advanced nursing roles. The 2009 Hospital, Patients, Health and Territories Act contains a section which sets out the general principle of co-operation between health professions which allows the transfer of activities, health acts or the reorganisation of health professional procedures with regard to the patient. However, the implementation of this Act is not straightforward and is facing obstacles. The recognition of advanced practices within an overarching and durable framework is therefore taking time to put in place. 1. Description of pilot projects involving advanced roles for nurses. A number of pilot projects involving advanced nursing practices, both in hospitals and in primary care, have been tested in recent years in the following areas: - expert nurses specialised in primary practices (Action de Santé Libérale en Equipe "ASALEE") who in particular offer advanced consultations in the area of health education; - expert nurse in home chemotherapy either in networks or	to patients improved patients' health (improved blood sugar balance). The management of patients' data by nurses (the administrative side of the work) can also improve patient monitoring. This co-operation had no impact on the number of doctor's consultations, and there is no evidence that doctors spent more time on complex cases. There was no significant impact on costs (Mousquès et al, 2010). The first results of another evaluation ("Sophia") from the CNAMTS (National Health Insurance for Employed people) are also positive. // Evaluations of pilot projects confirm the feasibility of delegation of tasks in terms of safety and quality. General: Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction (Similar findings were reported in a Finnish based systematic review- Vallimies-Patomäki et al, 2003). Not all data from the studies reported could be reported as meta-analysis, but meta-analysis data did confirm that patients were more satisfied with consultations with nurses than with doctors. Of interest is that nurses ordered significantly more investigations than doctors and had longer consultations with patients. However, the authors report that the studies reviewed did not have robust enough economic analysis to draw any firm conclusions about cost-effectiveness, and quality of life and health status and quality outcomes could not be analysed because of

			in hospital day care for on-going chemotherapy treatment; - expert nurses specialised in haemodialysis; - expert nurses specialised in the treatment of hepatitis C patients; - contact nurse for neuro-oncology; - nurses specialised in digestive function explorations; - pre-blood donation interview approved by a nurse. 2. Nurses' access to university training. In France, nurses can enrol on an individual basis in Bachelor's or Master's degree courses at university (or through derogations under agreements between healthcare training institutes and the university). They can also acquire specialised skills for which there is often no official qualification. In 2009, a major step has been taken with the recognition of the State nursing diploma as a professional first degree "license professionnelle" within the Bachelor's-Master's-Doctorate degree system.	the heterogeneity of measures utilised in different studies. A meta-analysis of nurse practitioners and nurse midwives in primary care in the US was reported by Brown and Grimes (1995). The value of this analysis is limited as only one third of the studies included involved research designs that were randomised and cost-effectiveness was not addressed (Brown and Grimes 1995). The analysis revealed that, in randomised studies, greater patient compliance (e.g. compliance in taking medications, keeping appointments, and following recommended behavioural changes) was apparent with nurse practitioners in comparison to doctors. In other, non-randomized, studies which were included, satisfaction and resolution of illness was higher for patients of nurse practitioners. The outcomes of other variables, quality of care, prescription of drugs, functional status, number of visits per patient and use of the emergency room, were comparable between nurses and doctors. Nurse midwives also achieved outcomes that were comparable to doctors and used less technology and analgesia in interpartum care. Dealy (2001) reports a systematic review, of nine papers that met inclusion criteria, examining the effectiveness of emergency nurse practitioners. The conclusion of this review is that emergency nurse practitioners are no better or worse than House Officers3 in seeing treating and discharging patients from minor injuries units in accident and emergency departments. One study in the review reported that the cost of treatment and investigations were similar in both groups but did not compare cost of employing a nurse practitioner and a junior doctor. Dealy (2001) recommends that in light of reduced access to junior doctors and long waiting time in accident and

				emergency it would be worth exploring the use of emergency nurse practitioners (In: Buchan and Calman, 2005). Richardson et al. (1998) report a review of skill-mix changes, but the current value of this review may be limited as many of the reported studies were conducted in the 1970s and 1980s. The authors report that although individual studies may identify positive outcomes of the substitution of nurses for doctors, many of these studies are methodologically weak such as small sample size and inadequate measures of outcome or cost, and generalisability of findings were deemed near negligible. However, they do highlight some pertinent findings about cost-effectiveness from individual studies in their review indicating that substitution can be cost effective as long as the salaries of the substitute clinicians remain below half of the physician salary (Schneider and Foley 1977 in Buchan and Calman, 2005).
Chevreul et al. (2010) Drexler & Rusu (2011)	France	Control demand by restricting freedom of settlement (policy level, nurses)	Attempts to restrict freedom of settlement have faced strong opposition from professional associations. Nevertheless, such restrictions were implemented for nurses in 2007 in the national agreement for nurses. Recently, the 2009 Hospital, Patients, Health and Territories Act (HPST Act) introduced financial incentives for attracting doctors in under-served areas (see Sections 4.2 and 5.2.3). In June 2007, a new general agreement was signed between SHI and the union of self-employed nurses. The agreement gives self-employed nurses more autonomy in the management and coordination of care for the elderly and calls for more stringent regulation of the geographic coverage of nurses, in order to address disparities (Naiditch 2007). The implementation of the agreement commenced in September 2008 on an	Effectiveness of intervention was not mentioned.

			experimental basis; it includes a 10% overall pay rise, financial and material incentives for nurses to settle in under-served areas and prohibition of settlement in over-served areas unless a retiring or leaving nurse is replaced (see also Section 7.1.4). The 2007 nurses' agreement with SHI was a first attempt to diminish the geographical freedom of health professionals in France. Indeed, there will be strict controls by ARSs over self-employed nurses' settlement in areas where nurse density is already high. Moreover, the agreement offered a number of material and financial benefits to nurses who were already working or willing to work in areas defined as under-served (see Section 5.2.4). In order to make the profession more attractive overall, it also included a general pay rise for nurses (10% increase in their hourly wage over two years) and their diploma is from now recognized as a university degree. In implementing control over professional geographical settlement first among nurses, SHI hoped that it would be able to extend this control to other professions in the future, especially to doctors. Control over doctors' settlement was, therefore, initially proposed as part of the 2009 HPST Act (see below), but subsequently these measures were abandoned by the government as they were strongly opposed by doctors. They were replaced by financial incentives. One of these was to impose a fine on doctors from medically over-served areas who refused to sign a health and solidarity contract (contrat santé solidarité) to participate in health care delivery in under-served areas (see Section 4.2). However this was also strongly opposed by doctors and in June 2010, one year after the vote on the Act, while opening the Fourth National Congress of	

			General Medicine, the Minister of Health announced that she would be dropping this financial incentive.	
Delamaire & Lafortune (2010)	Ireland	Extension of the use of / advanced roles for nurse (policy level, nurses)	Allowing for the prescription of medicines by nurses. Advanced nurses/nurse practitioners have some restricted responsibility for direct referral of patients (limitations or constraints on the level of responsibility and autonomy in relation to referral). Ireland has a dynamic policy to develop advanced practice nursing. The first roles in advanced practice began to develop in the 1990s, and the first advanced nurse practitioner post in emergency services was approved by the National Council for the Professional Development of Nursing and Midwifery (NCNM) in 2002. There are at least two categories of advanced practice nurses in Ireland: 1) Clinical Nurse Specialists (CNSs) and 2) Advanced Nurse Practitioners (ANPs) (Table 1). Some advanced practice roles for midwives are also considered as advanced categories but they are not in the scope of this study. The CNS role encompasses a major clinical focus, which comprises assessment, planning, delivery and evaluation of care given to patients and their families in hospital, community and outpatient settings. The core elements of specialist nursing are clinical focus, patient advocacy, education and training, audit, research and consultancy ANPs are highly experienced in clinical practice and promote wellness, offer healthcare interventions and advocate healthy lifestyle choices for patients, their families and carers in a wide variety of settings in collaboration with other healthcare professionals. They utilise advanced clinical nursing knowledge and critical thinking skills to independently provide patient care, including management of acute and/or chronic illness such as asthma, cardiac care, stroke (follow-up),	Two evaluations have already been conducted in Ireland, concluding that advanced practice nurses are safe practitioners in primary care (see table 2). General: Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction (Similar findings were reported in a Finnish based systematic review- Vallimies-Patomäki et al, 2003). Not all data from the studies reported could be reported as meta-analysis, but meta-analysis data did confirm that patients were more satisfied with consultations with nurses than with doctors. Of interest is that nurses ordered significantly more investigations than doctors and had longer consultations with patients. However, the authors report that the studies reviewed did not have robust enough economic analysis to draw any firm conclusions about cost-effectiveness, and quality of life and health status and quality outcomes could not be analysed because of the heterogeneity of measures utilised in different studies. A meta-analysis of nurse practitioners and nurse midwives in primary care in the US was reported by Brown and Grimes (1995). The value of this analysis is limited as only one third of the studies included involved research designs that were randomised and cost-effectiveness was not addressed (Brown and Grimes 1995). The analysis

			diabetes, cancer or mental health. Advanced nursing is carried out by experienced practitioners who are responsible for their own practice. Nurses can apply to be accredited as ANPs in approved posts, but their accreditation is confined to the specific post and area of employment. Re-accreditation for ANPs is a requirement after five years. A national body (the National Council for the Professional Development of Nursing and Midwifery) sets the criteria and standards for ANP posts, and monitors career pathways for nurses. Education level - From 1st September 2010 onwards: "all nurses […] who apply for Clinical Nurse Specialist […] post approval must have acquired a level 8 post-registration NQAI [National Qualification Authority of Ireland- major award) relevant to his/her area of specialist practice, [equivalent to a higher/postgraduate diploma]" (NCNM, 2008a). Advanced Nurse Practitioners must have a Master's degree in nursing prior to accreditation. Four universities offer Master's degrees in nursing with specific advanced practice skills, while the others offer generic Master's programmes (NCNM, 2005). Right to prescribe pharmaceutical drugs. Nurses in Ireland acquired the right to independently prescribe drugs in 2007, subject to certain criteria. This right applies to all registered nurses who have successfully completed a post-registration education programme on nurse prescribing and who are registered as nurse prescribers with the Irish Nursing Board. The additional training (beyond initial training) is a 6 month post-registration programme at level 8 (NQAI framework) – Bachelor's degree level. There were 112 registered nurse prescribers in Ireland in October 2009. Nurse independent prescribers can prescribe a large range of	revealed that, in randomised studies, greater patient compliance (e.g. compliance in taking medications, keeping appointments, and following recommended behavioural changes) was apparent with nurse practitioners in comparison to doctors. In other, non-randomized, studies which were included, satisfaction and resolution of illness was higher for patients of nurse practitioners. The outcomes of other variables, quality of care, prescription of drugs, functional status, number of visits per patient and use of the emergency room, were comparable between nurses and doctors. Nurse midwives also achieved outcomes that were comparable to doctors and used less technology and analgesia in interpartum care. Dealy (2001) reports a systematic review, of nine papers that met inclusion criteria, examining the effectiveness of emergency nurse practitioners. The conclusion of this review is that emergency nurse practitioners are no better or worse than House Officers3 in seeing treating and discharging patients from minor injuries units in accident and emergency departments. One study in the review reported that the cost of treatment and investigations were similar in both groups but did not compare cost of employing a nurse practitioner and a junior doctor. Dealy (2001) recommends that in light of reduced access to junior doctors and long waiting time in accident and emergency it would be worth exploring the use of emergency nurse practitioners (In: Buchan and Calman, 2005). Richardson et al. (1998) report a review of skill-mix changes, but the current value of this review may be limited as many of the reported studies were conducted in the 1970s and 1980s. The authors report that although individual studies may identify

			drugs relevant to their scope of practice (including antibiotics, antiviral drugs, antidepressants), and some controlled drugs	positive outcomes of the substitution of nurses for doctors, many of these studies are methodologically weak such as small sample size and inadequate measures of outcome or cost, and generalisability of findings were deemed near negligible. However, they do highlight some pertinent findings about cost-effectiveness from individual studies in their review indicating that substitution can be cost effective as long as the salaries of the substitute clinicians remain below half of the physician salary (Schneider and Foley 1977 in Buchan and Calman, 2005). Centre de Recherche d'etude et de Documentation en Economie de la Sante (CREDES) in France report a literature review of the efficacy and efficiency of the sharing of competencies in the primary care sector 1970 –2002 (Midy 2003). The review is almost exclusively based on texts in English language from the UK and North America and therefore reflects the development of primary care services in these countries (the fact that the review could not identify French language publications itself is interesting). The CREDES review indicates that the method of financing primary care was seen to play a specific role in the acceptability of transfer of competencies for one profession to another, specifically whether health-care staff are reimbursed for a contract or per head or for a particular intervention. The willingness of professions to either accept or delegate some of its activities was also an important factor. It was reported that some nurses did not feel equipped to take on diagnosing patients and associated prescribing competencies. The review concludes that current literature, although offering an opportunity to reflect on issues of skill-mix, currently does not present any solutions to the current shortages of health-

				care personnel (Buchan and Calman 2005).
Rechel et al. (2006)	Norway	Control of demand (permits for physician positions) (policy level, physicians)	It has always been more difficult to recruit physicians to positions in rural areas, especially general practitioners and those working in less popular specialties, such as psychiatry and community medicine. An important policy tool for improving the supply of physicians in rural areas has been the control of demand elsewhere. Since 1999, all publicly financed physician positions have required a permit from the Ministry of Health.	Mix results reported: Nevertheless, recruiting general practitioners to northern Norway has become increasingly difficult. In 1997, 28% of all positions in primary health care in the three most northern counties of Norway were vacant, with a vacancy rate of 37% in the small municipalities with a population of less than 4000. The insufficient coverage of health services is in part compensated by visiting personnel (often on expensive short-term contracts) and by physicians on internships (Kjekshus and Tjora 1998). Despite the recruitment problems faced by rural municipalities, however, the relative number of physicians is higher in rural areas, as there is an inevitable requirement for more physicians to cover a defined population in small municipalities simply because of the diseconomies of scale (Foss and Selstad 1997).
Delamaire & Lafortune (2010)	Poland	Extension of the use of / advanced roles for nurse (policy level, nurses)	Poland is beginning to explore possibilities to develop advanced practice roles for nurses, although nurse specialists may already be playing some advanced roles in consultations and in the area of chronic diseases. 1. Description of advanced roles of nurses. Nurse specialists in Poland can perform advanced tasks in nursing diagnosis and consultation (advanced physiological and psychological assessment). They can also be involved in the management of chronic diseases such as diabetes and end-stage renal disease. Nurses in "rescue medicine nursing" can also perform some advanced tasks such as triage activity to prioritise patients or other advanced tasks in the fields of emergency and first aid (e.g. emergency intubation, emergency tracheotomy). In addition, anaesthetic nurses can also be in charge of advanced tasks in emergency and first aid (e.g.	Effectiveness of intervention was not mentioned.

			intubation). On the other hand, no category of nurses is allowed to prescribe pharmaceutical drugs in Poland.	
Delamaire & Lafortune (2010)	Spain	Extension of the use of / advanced roles for nurse (policy level, nurses)	Allow for the prescription of (a limited range of) medicines by nurses (with special competencies). advanced nurses/nurse practitioners have some restricted responsibility for direct referral of patients (limitations or constraints on the level of responsibility and autonomy in relation to referral)	Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction (Similar findings were reported in a Finnish based systematic review- Vallimies-Patomäki et al, 2003). Not all data from the studies reported could be reported as meta-analysis, but meta-analysis data did confirm that patients were more satisfied with consultations with nurses than with doctors. Of interest is that nurses ordered significantly more investigations than doctors and had longer consultations with patients. However, the authors report that the studies reviewed did not have robust enough economic analysis to draw any firm conclusions about cost-effectiveness, and quality of life and health status and quality outcomes could not be analysed because of the heterogeneity of measures utilised in different studies. A meta-analysis of nurse practitioners and nurse midwives in primary care in the US was reported by Brown and Grimes (1995). The value of this analysis is limited as only one third of the studies included involved research designs that were randomised and cost-effectiveness was not addressed (Brown and Grimes 1995). The analysis revealed that, in randomised studies, greater patient compliance (e.g. compliance in taking medications, keeping appointments, and following recommended behavioural changes) was apparent with

				nurse practitioners in comparison to doctors. In other, non-randomized, studies which were included, satisfaction and resolution of illness was higher for patients of nurse practitioners. The outcomes of other variables, quality of care, prescription of drugs, functional status, number of visits per patient and use of the emergency room, were comparable between nurses and doctors. Nurse midwives also achieved outcomes that were comparable to doctors and used less technology and analgesia in interpartum care. Dealy (2001) reports a systematic review, of nine papers that met inclusion criteria, examining the effectiveness of emergency nurse practitioners. The conclusion of this review is that emergency nurse practitioners are no better or worse than House Officers3 in seeing treating and discharging patients from minor injuries units in accident and emergency departments. One study in the review reported that the cost of treatment and investigations were similar in both groups but did not compare cost of employing a nurse practitioner and a junior doctor. Dealy (2001) recommends that in light of reduced access to junior doctors and long waiting time in accident and emergency it would be worth exploring the use of emergency nurse practitioners (In: Buchan and Calman, 2005). Richardson et al. (1998) report a review of skill-mix changes, but the current value of this review may be limited as many of the reported studies were conducted in the 1970s and 1980s. The authors report that although individual studies may identify positive outcomes of the substitution of nurses for doctors, many of these studies are methodologically weak such as small sample size and inadequate measures of outcome or cost, and generalisability of

				findings were deemed near negligible. However, they do highlight some pertinent findings about cost-effectiveness from individual studies in their review indicating that substitution can be cost effective as long as the salaries of the substitute clinicians remain below half of the physician salary (Schneider and Foley 1977 in Buchan and Calman, 2005). Centre de Recherche d'etude et de Documentation en Economie de la Sante (CREDES) in France report a literature review of the efficacy and efficiency of the sharing of competencies in the primary care sector 1970 –2002 (Midy 2003). The review is almost exclusively based on texts in English language from the UK and North America and therefore reflects the development of primary care services in these countries (the fact that the review could not identify French language publications itself is interesting). The CREDES review indicates that the method of financing primary care was seen to play a specific role in the acceptability of transfer of competencies for one profession to another, specifically whether health-care staff are reimbursed for a contract or per head or for a particular intervention. The willingness of professions to either accept or delegate some of its activities was also an important factor. It was reported that some nurses did not feel equipped to take on diagnosing patients and associated prescribing competencies. The review concludes that current literature, although offering an opportunity to reflect on issues of skill-mix, currently does not present any solutions to the current shortages of health-care personnel. (Buchan and Calman 2005).
Delamaire & Lafortune (2010)	United Kingdom	Extension of the use of / advanced roles for nurse (nurse based telephone support, limited nurse prescribing, nurse consultant roles) (policy level,	Allow for the prescription of (restricted range of) medicines by nurses. Advanced nurses/nurse practitioners have some restricted responsibility for direct referral of	Mix results mentioned: While such skill mix changes may compensate for shortages of doctors, they might increase nurse shortages. Results reported in terms of

		nurses)	patients (limitations or constraints on the level of responsibility and autonomy in relation to referral). Nurses are being trained to take over doctors' roles and a new grade of "consultant nurse" is being developed in English hospitals. Outside hospitals, nurses are being trained to dispense pharmaceuticals. Nurses in particular have taken on a range of advanced roles, for example in epilepsy, diabetes and emergency care. Nurses have taken on a range of advanced roles, for example in epilepsy, diabetes and emergency care. New legislation came into effect in April 2012 that will allow over 20,000 nurses who have undertaken a specialist degree level course and hold a separate registered qualification to be able to prescribe from the same list of medicines as doctors within their specialty and competence. The changes mean that appropriately qualified nurses and pharmacists will have the same prescribing rights as doctors. The majority of prescriptions issued by nurses in England between 2005 and 2010 were for dressings and wounds, continence and stoma care products, according to recent research by Kingston University. Independent nurse prescribers also issued 9.1% of all emergency contraception prescription in primary care. Sources: The Press Association (2012) "Legislation to give nurses same prescribing powers as doctors" NursingTimes.net 3 April 2012 Ford, S 'Training access holds back nurses prescribers, warn researchers' NursingTimes.net 27 April 2012.	patient satisfaction. Research by the Royal College of Nursing shows that the number of nurses in advanced roles increased significantly from 2001 onwards (Royal College of Nursing, 2005). Nurses in advanced roles have been widely used in response to the challenges presented by the 2004 European Working Time Directive regulations. Extended roles have also been introduced within a number of other health professions, notably for physiotherapists in Accident and Emergency departments, and for radiographers in image reporting (House of Commons, Health Committee, 2007). Local differences between job titles and grades, and the fact that many of these new jobs and roles are not based on a registerable qualification, mean that it is difficult to assess their number4s and distribution. In evidence to the Health committee in 2007 Department of Health told the Committee that, in total, more than 100 new and extended clinical roles have been introduced in recent years (House of Commons, Health Committee, 2007). General: Horrocks et al. (2002) report a systematic review and meta-analysis (of 34 studies that fulfilled inclusion criteria) examining whether nurse practitioners working in primary care can provide equivalent care to doctors. This review does provide some evidence to indicate that nurses can provide care that, in comparison to that given by doctors, leads to at least equivalent outcomes and increased patient satisfaction (Similar findings were reported in a Finnish based systematic review-Vallimies-Patomäki et al, 2003).

NA – Not Available / NM – Not Mentioned